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PATENT
Attorney Docket No.: BEA9-2000-0015-US1

BOARD OF PATENT APPEALS
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Davis et al.

SERIAL NO.: 09/752,861

Group Art Unit: 2188

FILING DATE: December 28, 2000

Examiner: Portka, G.

FOR: NUMA System Resource
Descriptors Including
Performance
Characteristics

TRANSMITTAL LETTER

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Rochelle Lieberman, Reg. No. 39,276

Enclosed is a Brief in Support of Appeal in triplicate with copies of all references which were relied upon by Appellant, in triplicate, and a Credit Card Payment Form in the amount of \$500.00 pursuant to 37 C.F.R. §1.17(c).

Respectfully submitted,

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BRIEF OF PATENT OWNER ON APPEAL

1. Real Party in Interest

International Business Machines Corporation, a New York corporation, is the real party in interest.

2. Related Appeals and Interferences

There are no related appeals or interferences.

3. Status of Claims

Claims 1-28 remain pending in the application. Claims 1, 3, 10, 13, and 22 were

amended in response to the First Office Action dated August 23, 2004. The claims on Appeal are included in the Appendix.

4. Status of Amendments

Amendments to claims 9, 12, 18, 21, 25, and 26 were submitted after final rejection.

5. Summary of the Invention

Applicant's invention is a computer system that utilizes a set of data structures to model data paths. Firmware is used to create the data structures which in turn identify where each resource is located within the system topology. The firmware is used to store topology information in a data structure. Pointers are added to the data structure for addressing additional functions, which are maintained in the form of secondary data structures. An extended system descriptor is produced by the firmware to maintain information pertaining to the nodes in the system, a pointer to a node descriptor, information pertaining to the quantity of system interconnect levels, and an average system interconnect latency table. The extended system descriptor is also in the form of a data structure which stores a primary level of the system or partition layout, and includes pointers to another level of data structures for each node within the system. The extended system descriptor references a node descriptor data structure, which includes pointers to an array of secondary data structures. The extended system descriptor is the primary data structure over the physical layout of the node in the system, and includes a pointer to the node descriptor data structure, which in turn includes pointers to another level of data structures representing each of the resources in a node. In addition, a memory map is included to reference the memory blocks of each node. Accordingly, the firmware herein is a data structure containing information pertaining to the layout and topology of the computer system and the resources therein.

6. Issues

Claims 1-28 are rejected as being unpatentable over *Elnozahy et al.*, U.S. Patent No. 6,701,421, in view of *Sayles*, U.S. Patent No. 6,549,963, under 35 U.S.C. §103(a).

7. **Grouping of Claims**

There are three groupings of claims. Applicant has separated the pending claims into three different groups as the claims in the different groups do not stand or fall together, and hereby requests separate consideration of the claims in each of the separate groups.

Group I: Claims 1, 4, 5, 13-17, 22-24, and 28 are rejected on the *Elnozahy et al.* patent in view of the *Sayles* patent. The Examiner asserts that all of the elements of these claims are obvious under 35 U.S.C. §103(a).

Group II: Claims 2, 3, 9-12, 18-21, and 25-27 are rejected on the *Elnozahy et al.* patent in view of the *Sayles* patent. The Examiner asserts that all of the elements of these claims are obvious under 35 U.S.C. §103(a).

Group III: Claims 6, 7, and 8 are rejected on the *Elnozahy et al.* patent in view of the *Sayles* patent. The Examiner asserts that all of the elements of these claims are obvious under 35 U.S.C. §103(a).

ARGUMENT

I. Group I: Rejection of Claims 1, 4, 5, 13-17, 22-24, and 28 under 35 U.S.C. §103(a).

In the Official Action of October 26, 2004, the Examiner rejected claims 1, 4, 5, 13-17, 22-24, and 28 under 35 U.S.C. §103(a) as being unpatentable over *Elnozahy et al.*, U.S. Patent No. 6,701,421, in view of *Sayles*, U.S. Patent No. 6,549,963. The U.S. Supreme Court set forth the factual inquiries in determining obviousness under 35 U.S.C. §103(a) as follows:

1. Determining the scope and contents of the prior art;
2. Ascertaining the differences between the prior art and the claims at issue;
3. Resolving the level of ordinary skill in the pertinent art; and
4. Considering objective evidence present in the application indicating obviousness or non-obviousness in view of the first three factors.

Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966).¹ In following this factual inquiry, the Examiner must first consider the scope and contents of the prior art.

A. Discussion of the Contents of the Prior Art Reference Cited by the Examiner.

In rejecting claims 1, 4, 5, 13-17, 22-24, and 28 under 35 U.S.C. §103(a) as being unpatentable over *Elnozahy et al.*, in view of *Sayles*, the Examiner is hypothetically applying a method for allocating data with a method for configuring devices through the use of Basic Input Output System (BIOS).

The *Elnozahy et al.* patent shows a NUMA computer system that includes a set of nodes, with each node having processors, system memory, and a standard set of peripheral devices. Fig. 3 illustrates selected components of software used in the NUMA system. As illustrated, the software components include Basic Input Output System (BIOS) which is responsible for creating configuration tables that identify hardware components of the system and the size of the system memory. See Col. 4, lines 6-9. Accordingly, the computer system of *Elnozahy et al.* supports a computer system with BIOS for generating a configuration table in response to a boot event, wherein the configuration table identifies the system's hardware resources.

The *Sayles* patent shows a computer system having a bus coupled to multiple devices having different communications characteristics. At start up, a BIOS routine may be used to change settings in devices coupled to the bus to indicate which transfer modes are supported. See Col. 3, lines 15-16. Fig. 3 illustrates the BIOS routines initialization of tasks. The BIOS

¹ Applicant wishes to note that the U.S. Supreme Court in *Graham v. John Deere Co.* set forth a three part factual inquiry under 35 U.S.C. §103. Examiner's noted fourth part is merely recognized as the analysis of the results of the first three parts of the inquiry noted here.

routine may be programmed to change communication settings in the bus, to determine if more than two devices are located on the bus, and/or to indicate supported transfer modes of the bus. Accordingly, the BIOS of *Sayles* is used to changes settings associated with a bus.

B. Differences between the prior art and the claims at issue

In reviewing and studying the prior art references of *Elnozahy et al.* and *Sayles* it is clear that the scope of the contents are divergent in nature. The *Elnozahy et al.* patent accounts for a configuration table to identify hardware components of a computer system. However, there is no consideration given to expand the configuration table beyond identification. In fact, the *Elnozahy et al.* patent does not teach or suggest expansion of the system by including an additional descriptor pertaining to respective performance of resources in the system. Accordingly, *Elnozahy et al.* fails to account for a second descriptor produced by firmware as claimed by Applicant, wherein the second descriptor pertains to performance of resources within the system.

The *Sayles* patent accounts for BIOS to change settings in a bus of a computer system. However, there is no consideration in the *Sayles* patent for another descriptor associated with topological levels of one or more resources in the system. In fact, the *Sayles* patent does not teach or suggest expansion of the system by including an additional descriptor pertaining to topological levels of resources in the system. Accordingly, *Sayles* fails to account for an additional descriptor produced by firmware as claimed by Applicant, wherein the additional descriptor pertains to topological levels of one or more of the resources within the system.

C. Discussion of Applicant's Invention in View of the Prior Art References and Prior Art References Failure to Teach, Suggest, or Motivate the Claimed Combination

There is no teaching in *Elnozahy et al.* for firmware to produce first and second descriptors. At most, *Elnozahy et al.* teaches firmware to produce only one of the two descriptors. Similarly, there is no teaching in *Sayles* for firmware to produce first and second

descriptors. At most *Sayles* teaches only one of the two descriptors. In order to apply *Elnozahy et al.* to Applicant's pending application, *Elnozahy et al.* must be modified and reconfigured to support the firmware producing the two descriptors of Applicants. However, having the firmware produce the two descriptors of Applicants goes against the teachings of *Elnozahy et al.* "Although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.' " MPEP §2143.01 (citing *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430 (Fed. Cir. 1990). *Elnozahy et al.* does not teach or suggest firmware configured to produce the two descriptors as claimed by Applicant. To read *Elnozahy et al.* as providing or supporting both of these elements would require a modification to the invention of *Elnozahy et al.* not envisioned or required. Similarly, to read *Sayles* as providing firmware to produce the two descriptors claimed by Applicant would require a modification to the invention of *Sayles* not envisioned or required. The only suggestion for firmware that produces the two descriptors is derived from Applicant's invention. Absent Applicant's invention, there is no suggestion or motivation within *Elnozahy et al.* or *Sayles* for such modifications. "It is impermissible to use the claimed invention as an instructions manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780 (Fed. Cir. 1992) (citing *In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991)). Yet this is the very process that the Examiner has attempted to undertake. Although Applicant's invention may appear to combine elements found in *Elnozahy et al.* and *Sayles*, "the inquiry under [35 U.S.C.] §103 is whether prior use makes the picture of the jigsaw puzzle, rather than its piece obvious." *Kori Corp. v. Wilco Marsh Buggies & Draglines*, 708 F.2d 151, 155 (5th Cir. 1983). The entirety of Applicant's invention is greater than the sum of the parts that comprise the novelty of the invention. "[T]he linchpin is not whether the individual components of the patent were obvious at the time of the invention, but whether the aggregation produced a new or different result or achieved a synergistic effect." *Id.* (Citing *Continental Oil Co. v. Cole*, 634 F.2d 188, 197 (5th Cir. 1981)). Unlike *Elnozahy et al.* or *Sayles*, Applicant's firmware is configured to produce two descriptors, a first descriptor reflecting topology and a second descriptor reflecting performance of resources. It is the dynamic characteristic of the firmware together with the claimed descriptors that enhance system performance.

Even if for the purposes of argument it would be trivial to combine the teachings of *Elnozahy et al.* with the teachings of *Sayles*, it would not necessarily be obvious to combine them in view of one another. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. See MPEP §2143. “The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant’s disclosure.” MPEP §2143, (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). Here *Elnozahy et al.* teaches the use the first descriptor, but does not teach, suggest, or motivate to expand beyond the first descriptor. As noted by the Examiner, *Elnozahy et al.* fails to teach or suggest the second descriptor produced by firmware. While *Sayles* teaches the second descriptor, there is no suggestion of employing a first descriptor, or an equivalent thereof, by firmware. “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination.” MPEP §2143.01 (citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)). The only suggestion for the combination of elements that form Applicant’s invention is found in Applicant’s invention itself. Accordingly, the Applicant respectfully submits that claims 1, 4-5, 13-17, 22-24, and 28 would not have been obvious for the above outlined reasons and a ruling by the Board of Patent Appeals in Applicant’s favor and allowance of claims 1, 4-5, 13-17, 22-24, and 28 is respectfully requested.

II. Group II: Rejection of Claims 2, 3, 9-12, 18-21, and 25-27 under 35 U.S.C. §103(a).

In the Official Action of October 26, 2004, the Examiner rejected claims 2, 3, 9-12, 18-21, and 25-27 under 35 U.S.C. §103(a) as being unpatentable over *Elnozahy et al.*, U.S. Patent No. 6,701,421, in view of *Sayles*, U.S. Patent No. 6,549,963.

The discussions and comments pertaining to *Elnozahy et al.* and *Sayles* above are hereby incorporated by reference.

A. Differences between the prior art and the claims at issue

In reviewing and studying the prior art references of *Elnozahy et al.* and *Sayles*, it is clear that although each of *Elnozahy et al.* and *Sayles* may contain some of the elements of Applicant's invention, individually or in combination they do not teach all of the claimed elements.

B. Discussion of Applicant's Invention in View of the Prior Art References and Prior Art References Failure to Teach All of the Claimed Limitations of Applicant's Invention

As the CAFC has made clear, the prior art must teach the desirability of the modification. "The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon et al.*, 733 F.2d 900, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is axiomatic that the subject matter of the claims may not be considered obvious as a result of a hypothetical combination of references unless something in the references suggests that an advantage may be derived from combining their teachings. In this respect, the CAFC appears to speak directly to the issue of the need to determine the scope and contents of the prior art. Accordingly, the determination as to what may be within the scope and contents of the prior art serves to establish the parameters of what art may even be considered in determining the obviousness of an invention.

As noted above, each of *Elnozahy et al.* and *Sayles* patents may individually contain some of the elements of Applicant's invention. However, neither *Elnozahy et al.* nor *Sayles* teach or suggest any of their supposed first and second descriptors in the form of a data structure. In order to apply *Elnozahy et al.* and/or *Sayles* to Applicant's pending application, *Elnozahy et al.* and/or *Sayles* must be modified and reconfigured in order to support a modification of firmware from the traditional computer system to a data structure format. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP §2143.03, citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Both *Elnozahy et al.* and *Sayles* clearly do not show a format of the first descriptor as a data structure or a format of the second descriptor as a data structure. In order to provide the data structure format of the descriptors produced by the firmware, the systems of both *Elnozahy et al.* and *Sayles* must be modified in such a way as to provide the data structure format. However, this

goes against the teaching of both *Elnozahy et al.* and *Sayles*, individually and in combination, with respect to the prior art. “Although a prior art device ‘may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.’” MPEP §2143.01 (citing *In re Mills*, 916 F.2d 680, 682, 16 USPQ 2d. 1430 (Fed. Cir. 1990)). Neither *Elnozahy et al.* nor *Sayles* suggest a data structure format for the associated descriptors. To read either *Elnozahy et al.* or *Sayles* as providing such would require a modification to each of the inventions of *Elnozahy et al.* and *Sayles* not envisioned or required. The only suggestion for utilizing firmware to produce first and second descriptors in the form of data structures is derived from Applicant’s invention. Absent Applicant’s invention, there is no teaching, suggestion, or motivation within *Elnozahy et al.* or *Sayles* for such a modification. Unlike *Elnozahy et al.* and *Sayles*, Applicant’s invention modifies the firmware into a plurality of data structures to provide a novel system for enabling intelligent decisions regarding placement of workload with respect to resources. Accordingly, Applicant respectfully contends that the teachings of *Elnozahy et al.* and *Sayles* do not meet the standard set by the CAFC’s interpretation of 35 U.S.C. §103(a), and respectfully requests the Board of Patent Appeals rule in Applicant’s favor and direct allowance of claims 2, 3, 9-12, 18-21, and 25-27.

III. Group III: Rejection of Claims 6, 7, and 8 under 35 U.S.C. §103(a).

In the Official Action of October 26, 2004, the Examiner rejected claims 6, 7, and 8 under 35 U.S.C. §103(a) as being unpatentable over *Elnozahy et al.*, U.S. Patent No. 6,701,421, in view of *Sayles*, U.S. Patent No. 6,549,963.

The discussions and comments pertaining to *Elnozahy et al.* and *Sayles* above are hereby incorporated by reference.

A. Differences between the prior art and the claims at issue

In reviewing and studying the prior art references of *Elnozahy et al.* and *Sayles*, it is clear that although each of *Elnozahy et al.* and *Sayles* may contain some of the elements of Applicant’s invention, individually or in combination they do not teach all of the claimed elements. More

specifically, the elements of claims 6, 7, and 8 focus on a dynamic upator for both the first and second descriptors and the functionality associated therewith. Even if one were to equivocate the hardware abstraction layer of *Elnozahy et al.* with the first descriptor, there remains no support for a second descriptor nor a dynamic upator for the second descriptor.

B. Discussion of Applicant's Invention in View of the Prior Art References and Prior Art References Failure to Teach All of the Claimed Limitations of Applicant's Invention

As noted above, each of *Elnozahy et al.* and *Sayles* patent may individually contain some of the elements of Applicant's invention. However, neither *Elnozahy et al.* nor *Sayles* make reference or implication of a dynamic upator. Although the hardware abstraction layer of *Elnozahy et al.* may be used to update the BIOS, there is no support for the hardware abstraction layer to update a second descriptor in a dynamic manner. In order to apply *Elnozahy et al.* to the elements of claims 6-8, the system of *Elnozahy et al.* must be modified in such a way as to provide two descriptors and a dynamic upator for both of the descriptors. However, this goes against the teaching of both *Elnozahy et al.* and *Sayles*, individually and in combination, with respect to the prior art. “Although a prior art device ‘may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.’” MPEP §2143.01 (citing *In re Mills*, 916 F.2d 680, 682, 16 USPQ 2d. 1430 (Fed. Cir. 1990)). Neither *Elnozahy et al.* and *Sayles* suggest a system with two descriptors produced by the firmware and a dynamic upator for both of the claimed descriptors. To read either or both *Elnozahy et al.* or *Sayles* as providing such would require a modification to each of the inventions of *Elnozahy et al.* and *Sayles* not envisioned or required. The only suggestion for utilizing a dynamic upator to both the first and second descriptors is derived from Applicant's invention. Absent Applicant's invention, there is no suggestion or motivation within *Elnozahy et al.* or *Sayles* for such a modification. “It is impermissible to use the claimed invention as an

instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ 2d 1780 (Fed. Cir. 1992) (citing *In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991)). Yet this is the very process that the Examiner has attempted to undertake. The entirety of Applicant’s invention is greater than the sum of the parts that comprise the novelty of the invention. Unlike *Elnozahy et al.* and *Sayles*, Applicant’s invention does include a dynamic updatator to the first and second descriptors to support updating the descriptors during operation of the computer system. Accordingly, Applicant respectfully contends that the teachings of *Elnozahy et al.* and *Sayles* do not meet the standard set by the CAFC’s interpretation of 35 U.S.C. §103(a), and respectfully requests the Board of Patent Appeals rule in Applicant’s favor and direct allowance of claims 6-8.

C. Discussion of Applicant’s Invention in View of the Prior Art References and Prior Art References Failure to Teach All of the Claimed Limitations of Applicant’s Invention.

The discussion of *Elnozahy et al.* and *Sayles* above is hereby incorporated by reference. As noted above, Applicant respectfully submits that the limitations of Applicant’s claimed invention would not have been obvious for the reasons discussed in Section I above. Accordingly, Applicant respectfully requests a ruling by the Board of Patent Appeals and Interferences in Applicant’s favor and allowance of claim 6-8.

In reviewing and studying the prior art reference of *Elnozahy et al.* and *Sayles*, it is clear that these references do not touch on a dynamic updatator for both the first and second descriptors as taught by Applicant. The *Elnozahy et al.* patent accounts for at most one of the descriptors and potentially a dynamic updatator associated therewith, and the *Sayles* patent accounts for at most the other descriptor. There is no suggestion within the prior art for a computer system that employs both descriptors and a dynamic updatator for both of the descriptors. “To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.” MPEP §2143.03 (citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

Clearly, the *Elnozahy et al.* patent does not teach the limitation of expanding the alleged updator to a second descriptor since there is no teaching, suggestion, or motivation within *Elnozahy et al.* for a second descriptor. Similarly, there is no teaching, suggestion, or motivation with *Sayles* to provide a dynamic updator to the alleged descriptor. Accordingly, Applicant respectfully submits that claims 6-8 would not have been obvious for the above outlined reasons and a ruling by the Board of Patent Appeals and Interferences in Applicant's favor and allowance of claims 6-8 is respectfully requested.

D. Discussion of Applicant's Invention in View of the Prior Art References and Prior Art References Failure to Teach the Desirability of Applicant's Invention.

The discussion of *Elnozahy et al.* and *Sayles* above are hereby incorporated by reference. As noted above, Applicant respectfully submit that the limitations of Applicant's claimed invention would not have been obvious for the reasons discussed in Section I above regarding *Elnozahy et al.* and *Sayles* and this Section III. Applicant contends that the prior discussion clearly mitigates in favor of concluding that the prior art reference utilized by the Examiner fail to teach the desirability of Applicant's invention. Accordingly, Applicant respectfully requests a ruling by the Board of Patent Appeals and Interferences in Applicant's favor and allowance of claims 6-8.

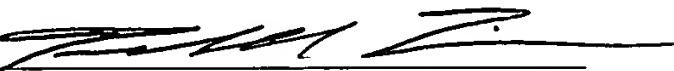
IV. Conclusion

In view of the rejections presented by the Examiner in the Office Action made final, it appears clear on the record that the *Elnozahy et al.* and *Sayles* references do not obviate Applicant's invention based upon the legal definition of obviousness. Although the prior art reference cited by the Examiner relates to a computer system having alleged descriptor or equivalents thereof, the structure of the descriptors of *Elnozahy et al.* and *Sayles* are different than that claimed by Applicants. Neither *Elnozahy et al.* nor *Sayles* exhibits the motivation or suggest the desirability of modifications present such that one skilled in the art would find it

obvious to incorporate modifications to enhance system performance as claimed by Applicant. In fact, neither *Elnozahy et al.* nor *Sayles* mentions or suggests expansion to an additional descriptor, nor do they teach or suggest a data structure format for each of the descriptors. Accordingly, as noted above, it is improper to use Applicant's claimed invention as a template for hindsight reconstruction or as the very means for drawing to the obviousness of the claimed invention even if that could construct the claimed invention where the prior art is otherwise not analogous or does not suggest the desirability for one skilled in the art to incorporate such modifications.

Applicant believes that those skilled in the art have failed to solve the problem as claimed by Applicant. Accordingly, for the reasons outlined above, Applicant respectfully requests the Board of Patent Appeals direct allowance of this application and all pending claims.

Respectfully submitted,

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Date: March 25, 2005

Appendix:

1. A computer system, comprising:
 - multiple processors;
 - a plurality of resources assigned to node groups;
 - a first descriptor of respective topological levels of at least one of the resources; and
 - a second descriptor of respective performance of said resources,wherein the first and second descriptors are produced by firmware.
2. The system of claim 1, wherein said descriptor is a first level data structure, and said second descriptor is a primary data structure.
3. The system of claim 2, wherein said primary data structure comprises a pointer to a secondary data structure.
4. The system of claim 1, further comprising a node identifier for each node for identifying positional placement of a resource.
5. The system of claim 4, wherein said node identifier represents multiple levels of interconnect.
6. The system of claim 1, further comprising a dynamic updatator of at least the first and second descriptors.
7. The system of claim 6, wherein said dynamic updatator reflects real-time system configuration into the first descriptor.
8. The system of claim 6, wherein said dynamic updatator reflects real-time system performance into the second descriptor.

9. The system of claim 1, wherein said second descriptor includes a pointer to a secondary data structure having a descriptor selected from the group consisting of: processor descriptors, bus descriptors, memory descriptors, and share cache descriptors.
10. The system of claim 9, wherein said shared cache descriptor reflects interconnects of the system.
11. The system of claim 10, wherein said shared cache descriptor reflects latencies of the interconnects.
12. The system of claim 1, wherein said first descriptor reflects average latency between the node groups.
13. An article comprising:
 - a computer-readable signal bearing medium readable by a computer having multiple processors and a plurality of resources assigned to node groups;
 - means in the medium for determining topological levels of at least some of the resources; and
 - means in the medium for determining performance of said resources, wherein said topological level determining means and said performance determining means are capable of being stored in firmware of the system.
14. The article of claim 13, wherein the medium is a recordable data storage medium.
15. The article of claim 13, wherein the medium is a modulated carrier signal.
16. The article of claim 13, wherein said topological level determining means is a first descriptor and said performance determining means is a second descriptor.
17. The article of claim 13, further comprising a node identifier for identifying positional

placement of a resource for each node.

18. The article of claim 16, wherein said second descriptor is selected from the group consisting of: processor descriptors, bus descriptors, memory descriptors, and shared cache descriptors.
19. The article of claim 13, wherein said second descriptor comprises a shared cache descriptor which reflects interconnect of resources.
20. The article of claim 19, wherein said shared cache descriptor reflects latencies of the interconnects.
21. The article of claim 16, wherein said second descriptor reflects average latencies between node groups.
22. A method for enabling allocation of resources in a multiprocessor, comprising:
 - assigning multiple resources into node groups; and
 - maintaining system resource topology and performance descriptions as at least one data structure produced by firmware.
23. The method of claim 22, further comprising traversing the data structure to enable allocation of at least some of the resources.
24. The method of claim 22, wherein said traversal step includes accessing a second data structure.
25. The method of claim 24, wherein said second data structure is selected from the group consisting of: processor descriptors, bus descriptors, memory descriptors and shared cache descriptors.

26. The method of claim 24, wherein said second data structure includes a shared cache descriptor for describing at least part of a system interconnect including latency between sibling nodes.
27. The method of claim 22, further comprising maintaining at least average latency between at least two of the nodes.
28. The method of claim 22, wherein said traversal step includes recursively accessing additional data structure levels.

Brief of Patent Owner on Appeal

REFERENCES & CITED CASES

(In re Davis et al., Serial No.:09/752,861)

FindLaw: Laws: Cases and Codes: Supreme Court Opinions[Search](#)US Supreme Court [\[options\]](#)<http://laws.findlaw.com/us/383/1.html>[Jump to cited page 1 within this case](#)[Cases citing this case: Supreme Court](#)[Cases citing this case: Circuit Courts](#)**U.S. Supreme Court****GRAHAM v. JOHN DEERE CO., 383 U.S. 1 (1966)**

383 U.S. 1

GRAHAM ET AL. v. JOHN DEERE CO. OF KANSAS CITY ET AL.
 CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE EIGHTH
 CIRCUIT.

No. 11.

Argued October 14, 1965.
 Decided February 21, 1966.*

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[Footnote *] Together with No. 37, Calmar, Inc. v. Cook Chemical Co., and No. 43, Colgate-Palmolive Co. v. Cook Chemical Co., also on certiorari to the same court.

In No. 11 petitioners sued for infringement of a patent, consisting of a combination of old mechanical elements, for a device designed to absorb shock from plow shanks in rocky soil to prevent damage to the plow. In 1955 the Fifth Circuit held the patent valid, ruling that a combination is patentable when it produces an "old result in a cheaper and otherwise more advantageous way." Here the Eighth Circuit held that since there was no new result in the combination the patent was invalid. Petitioners in Nos. 37 and 43 filed actions for declaratory judgments declaring invalid respondent's patent relating to a plastic finger sprayer with a "hold-down" cap used as a built-in dispenser for containers with liquids, principally insecticides. By cross-action respondent claimed infringement. The District Court and the Court of Appeals sustained the patent. Held: The patents do not meet the test of the "nonobvious" nature of the "subject matter sought to be patented" to a person having ordinary skill in the pertinent art, set forth in 103 of the Patent Act of 1952, and are therefore invalid. Pp. 3-37. [383 U.S. 1-2]

(a) In carrying out the constitutional command of Art. I, 8, that a patent system "promote the Progress of useful Arts," Congress established the two statutory requirements of novelty and utility in the Patent Act of 1793. Pp. 3, 6, 12.

(b) This Court in Hotchkiss v. Greenwood, 11 How. 248 (1851), additionally conditioned the issuance of a patent upon the evidence of more ingenuity and skill than that possessed by an ordinary mechanic acquainted with the business. P. 11.

(c) In 103 of the 1952 Patent Act Congress added the statutory nonobvious subject matter requirement, originally expounded in Hotchkiss, which merely codified judicial precedents requiring a comparison of the subject matter sought to be patented and the prior art, tying patentable inventions to advances in the art. Although 103 places emphasis upon inquiries into obviousness, rather than into "invention," the general level of innovation necessary to sustain patentability remains unchanged under the 1952 Act. Pp. 14-17

(d) This section permits a more practical test of patentability. The determination of "nonobviousness" is made after establishing the scope and content of prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the pertinent art. P. 17.

(e) With respect to each patent involved here the differences between the claims in issue and the pertinent

prior art would have been obvious to a person reasonably skilled in that art. Pp. 25-26, 37. 333 F.2d 529; affirmed; 336 F.2d 110, reversed and remanded.

Orville O. Gold argued the cause for petitioners in No. 11. With him on the brief was Claude A. Fishburn. Dennis G. Lyons argued the cause for petitioners in Nos. 37 and 43. With him on the briefs for petitioner in No. 37 were Victor H. Kramer and Francis G. Cole. On the brief for petitioner in No. 43 were George H. Mortimer and Howard A. Crawford.

S. Tom Morris argued the cause for respondents in No. 11. With him on the brief were W. W. Gibson and Thomas E. Scofield. Gordon D. Schmidt argued the cause for respondent in Nos. 37 and 43. With him on [383 U.S. 1, 3] the brief were Carl E. Enggas, Hugh B. Cox and Charles A. Miller.

Briefs of amici curiae in No. 11 were filed by Roger Robb for the American Bar Association; by Stanton T Lawrence, Jr., for the New York Patent Law Association; by George E. Frost for the Illinois State Bar Association; by J. Vincent Martin, Alfred H. Evans and Russell E. Schlorff for the State Bar of Texas; and by Robert W Hamilton for the School of Law of the University of Texas.

MR. JUSTICE CLARK delivered the opinion of the Court.

After a lapse of 15 years, the Court again focuses its attention on the patentability of inventions under the standard of Art. I, § 8, cl. 8, of the Constitution and under the conditions prescribed by the laws of the United States. Since our last expression on patent validity, *A. & P. Tea Co. v. Supermarket Corp.*, 340 U.S. 147 (1950), the Congress has for the first time expressly added a third statutory dimension to the two requirements of novelty and utility that had been the sole statutory test since the Patent Act of 1793. This is the test of obviousness, i.e., whether "the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made." 103 of the Patent Act of 1952, 35 U.S.C. 103 (1964 ed.).

The questions, involved in each of the companion cases before us, are what effect the 1952 Act had upon traditional statutory and judicial tests of patentability and what definitive tests are now required. We have concluded that the 1952 Act was intended to codify judicial precedents embracing the principle long ago [383 U.S. 1, 4] announced by this Court in *Hotchkiss v. Greenwood*, 11 How. 248 (1851), and that, while the clear language of 103 places emphasis on an inquiry into obviousness, the general level of innovation necessary to sustain patentability remains the same.

I.

The Cases.

(a). No. 11, *Graham v. John Deere Co.*, an infringement suit by petitioners, presents a conflict between two Circuits over the validity of a single patent on a "Clamp for vibrating Shank Plows." The invention, a combination of old mechanical elements, involves a device designed to absorb shock from plow shanks as they plow through rocky soil and thus to prevent damage to the plow. In 1955, the Fifth Circuit had held the patent valid under its rule that when a combination produces an "old result in a cheaper and otherwise more advantageous way," it is patentable. *Jeoffroy Mfg., Inc. v. Graham*, 219 F.2d 511, cert. denied, 350 U.S. 826. In 1964, the Eighth Circuit held, in the case at bar, that there was no new result in the patented combination and that the patent was, therefore, not valid. 333 F.2d 529, reversing 216 F. Supp. 272. We granted certiorari, 379 U.S. 956. Although we have determined that neither Circuit applied the correct test, we conclude that the patent is invalid under 103 and, therefore, we affirm the judgment of the Eighth Circuit.

(b). No. 37, *Calmar, Inc. v. Cook Chemical Co.*, and No. 43, *Colgate-Palmolive Co. v. Cook Chemical Co.*, both from the Eighth Circuit, were separate declaratory judgment actions, but were filed contemporaneously. Petitioner in Calmar is the manufacturer of a finger-operated sprayer with a "hold-down" cap of the type commonly seen on grocers' shelves inserted in bottles of insecticides and other liquids prior to shipment. Petitioner in Colgate-Palmolive is a purchaser of the sprayers [383 U.S. 1, 5] and uses them in the distribution of its products. Each action sought a declaration of invalidity and noninfringement of a patent on similar sprayers issued to Cook Chemical as assignee of Baxter I. Scoggin, Jr., the inventor. By cross-action, Cook Chemical claimed infringement. The actions were consolidated for trial and the patent was sustained by the District Court. 220 F. Supp. 414. The Court of Appeals affirmed, 336 F.2d 110, and we granted certiorari, 380 U.S. 949. We reverse.

Manifestly, the validity of each of these patents turns on the facts. The basic problems, however, are the same in each case and require initially a discussion of the constitutional and statutory provisions covering the patentability of the inventions.

II.

At the outset it must be remembered that the federal patent power stems from a specific constitutional provision which authorizes the Congress "To promote the Progress of . . . useful Arts, by securing for limited Times to Inventors the exclusive Right to their . . . Discoveries." Art. I, 8, cl. 8. 1 The clause is both a grant of power and a limitation. This qualified authority, unlike the power often exercised in the sixteenth and seventeenth centuries by the English Crown, is limited to the promotion of advances in the "useful arts." It was written against the backdrop of the practices - eventually curtailed by the Statute of Monopolies - of the Crown in granting monopolies to court favorites in goods or businesses which had long before been enjoyed by the public. See Meinhart, *Inventions, Patents and Monopoly*, pp. 30-35 (London, 1946). The Congress in the [383 U.S. 1, 6] exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby. Moreover, Congress may not authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available. Innovation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must "promote the Progress of . . . useful Arts." This is the standard expressed in the Constitution and it may not be ignored. And it is in this light that patent validity "requires reference to a standard written into the Constitution" *A & P. Tea Co. v. Supermarket Corp.*, *supra*, at 154 (concurring opinion).

Within the limits of the constitutional grant, the Congress may, of course, implement the stated purpose of the Framers by selecting the policy which in its judgment best effectuates the constitutional aim. This is but a corollary to the grant to Congress of any Article I power. *Gibbons v. Ogden*, 9 Wheat. 1. Within the scope established by the Constitution, Congress may set out conditions and tests for patentability. *McClurg v. Kingsland*, 1 How. 202, 206. It is the duty of the Commissioner of Patents and of the courts in the administration of the patent system to give effect to the constitutional standard by appropriate application, in each case, of the statutory scheme of the Congress.

Congress quickly responded to the bidding of the Constitution by enacting the Patent Act of 1790 during the second session of the First Congress. It created an agency in the Department of State headed by the Secretary of State, the Secretary of the Department of War [383 U.S. 1, 7] and the Attorney General, any two of whom could issue a patent for a period not exceeding 14 years to any petitioner that "hath . . . invented or discovered any useful art, manufacture, . . . or device, or any improvement therein not before known or used" if the board found that "the invention or discovery [was] sufficiently useful and important . . ." 1 Stat. 110. This group, whose members administered the patent system along with their other public duties, was known by its own designation as "Commissioners for the Promotion of Useful Arts."

Thomas Jefferson, who as Secretary of State was a member of the group, was its moving spirit and might well be called the "first administrator of our patent system." See Federico, *Operation of the Patent Act of 1790*, 18 J. Pat. Off. Soc. 237, 238 (1936). He was not only an administrator of the patent system under the 1790 Act, but was also the author of the 1793 Patent Act. In addition, Jefferson was himself an inventor of great note. His unpatented improvements on plows, to mention but one line of his inventions, won acclaim and recognition on both sides of the Atlantic. Because of his active interest and influence in the early development of the patent system, Jefferson's views on the general nature of the limited patent monopoly under the Constitution, as well as his conclusions as to conditions for patentability under the statutory scheme, are worthy of note.

Jefferson, like other Americans, had an instinctive aversion to monopolies. It was a monopoly on tea that sparked the Revolution and Jefferson certainly did not favor an equivalent form of monopoly under the new government. His abhorrence of monopoly extended initially to patents as well. From France, he wrote to Madison (July 1788) urging a Bill of Rights provision restricting monopoly, and as against the argument that [383 U.S. 1, 8] limited monopoly might serve to incite "ingenuity," he argued forcefully that "the benefit even of limited monopolies is too doubtful to be opposed to that of their general suppression." V *Writings of Thomas Jefferson*, at 47 (Ford ed., 1895).

His views ripened, however, and in another letter to Madison (Aug. 1789) after the drafting of the Bill of Rights, Jefferson stated that he would have been pleased by an express provision in this form:

"Art. 9. Monopolies may be allowed to persons for their own productions in literature & their own inventions in the arts, for a term not exceeding - years but for no longer term & no other purpose." *Id.*, at 113.

And he later wrote:

"Certainly an inventor ought to be allowed a right to the benefit of his invention for some certain time. Nobody wishes more than I do that ingenuity should receive a liberal encouragement." Letter to Oliver Evans (May 1807), V *Writings of Thomas Jefferson*, at 75-76 (Washington ed.).

Jefferson's philosophy on the nature and purpose of the patent monopoly is expressed in a letter to Isaac McPherson (Aug. 1813), a portion of which we set out in the margin. 2 He rejected a natural-rights theory in [383 U.S. 1, 9] intellectual property rights and clearly recognized the social and economic rationale of the patent system. The patent monopoly was not designed to secure to the inventor his natural right in his discoveries. Rather, it was a reward, an inducement, to bring forth new knowledge. The grant of an exclusive right to an

invention was the creation of society - at odds with the inherent free nature of disclosed ideas - and was not to be freely given. Only inventions and discoveries which furthered human knowledge, and were new and useful, justified the special inducement of a limited private monopoly. Jefferson did not believe in granting patents for small details, obvious improvements, or frivolous devices. His writings evidence his insistence upon a high level of patentability.

As a member of the patent board for several years, Jefferson saw clearly the difficulty in "drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not." The board on which he served sought to draw such a line and formulated several rules which are preserved in [383 U.S. 1, 10] Jefferson's correspondence. Despite the board's efforts, Jefferson saw "with what slow progress a system of general rules could be matured." Because of the "abundance" of cases and the fact that the investigations occupied "more time of the members of the board than they could spare from higher duties, the whole was turned over to the judiciary, to be matured into a system, under which every one might know when his actions were safe and lawful." Letter to McPherson, *supra*, at 181, 182. Apparently Congress agreed with Jefferson and the board that the courts should develop additional conditions for patentability. Although the Patent Act was amended, revised or codified some 50 times between 1790 and 1950, Congress steered clear of a statutory set of requirements other than the bare novelty and utility tests reformulated in Jefferson's draft of the 1793 Patent Act.

III.

The difficulty of formulating conditions for patentability was heightened by the generality of the constitutional grant and the statutes implementing it, together with the underlying policy of the patent system that "the things which are worth to the public the embarrassment [383 U.S. 1, 11] of an exclusive patent," as Jefferson put it, must outweigh the restrictive effect of the limited patent monopoly. The inherent problem was to develop some means of weeding out those inventions which would not be disclosed or devised but for the inducement of a patent.

This Court formulated a general condition of patentability in 1851 in *Hotchkiss v. Greenwood*, 11 How. 248. The patent involved a mere substitution of materials - porcelain or clay for wood or metal in doorknobs - and the Court condemned it, holding: 4

"[U]nless more ingenuity and skill . . . were required . . . than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skilful mechanic, not that of the inventor." At p. 267.

Hotchkiss, by positing the condition that a patentable invention evidence more ingenuity and skill than that possessed by an ordinary mechanic acquainted with the business, merely distinguished between new and useful innovations that were capable of sustaining a patent and those that were not. The *Hotchkiss* test laid the cornerstone of the judicial evolution suggested by Jefferson and left to the courts by Congress. The language in the case, and in those which followed, gave birth to "invention" as a word of legal art signifying patentable inventions. Yet, as this Court has observed, "[t]he truth is the word ['invention'] cannot be defined in such manner as to afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty [383 U.S. 1, 12] or not." *McClain v. Ortmayer*, 141 U.S. 419, 427 (1891); *A. & P. Tea Co. v. Supermarket Corp.*, *supra*, at 151. Its use as a label brought about a large variety of opinions as to its meaning both in the Patent Office, in the courts, and at the bar. The *Hotchkiss* formulation, however, lies not in any label, but in its functional approach to questions of patentability. In practice, *Hotchkiss* has required a comparison between the subject matter of the patent, or patent application, and the background skill of the calling. It has been from this comparison that patentability was in each case determined.

IV.

The 1952 Patent Act.

The Act sets out the conditions of patentability in three sections. An analysis of the structure of these three sections indicates that patentability is dependent upon three explicit conditions: novelty and utility as articulated and defined in 101 and 102, and nonobviousness, the new statutory formulation, as set out in 103. The first two sections, which trace closely the 1874 codification, express the "new and useful" tests which have always existed in the statutory scheme and, for our purposes here, need no clarification. 5 The pivotal [383 U.S. 1, 13] section around which the present controversy centers is 103. It provides:

" 103. Conditions for patentability; non-obvious subject matter

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made." [383 U.S. 1, 14]

The section is cast in relatively unambiguous terms. Patentability is to depend, in addition to novelty and utility, upon the "non-obvious" nature of the "subject matter sought to be patented" to a person having ordinary skill in the pertinent art.

The first sentence of this section is strongly reminiscent of the language in Hotchkiss. Both formulations place emphasis on the pertinent art existing at the time the invention was made and both are implicitly tied to advances in that art. The major distinction is that Congress has emphasized "nonobviousness" as the operative test of the section, rather than the less definite "invention" language of Hotchkiss that Congress thought had led to "a large variety" of expressions in decisions and writings. In the title itself the Congress used the phrase "Conditions for patentability; non-obvious subject matter" (italics added), thus focusing upon "nonobviousness" rather than "invention." 6 The Senate and House Reports, S. Rep. No. 1979, 82d Cong., 2d Sess. (1952); H. R. Rep. No 1923, 82d Cong., 2d Sess. (1952), reflect this emphasis in these terms:

"Section 103, for the first time in our statute, provides a condition which exists in the law and has existed for more than 100 years, but only by reason of decisions of the courts. An invention which has been made, and which is new in the sense that the same thing has not been made before, may still not be patentable if the difference between the new thing and what was known before is not considered sufficiently great to warrant a patent. That has been expressed in a large variety of ways in decisions of [383 U.S. 1, 15] the courts and in writings. Section 103 states this requirement in the title. It refers to the difference between the subject matter sought to be patented and the prior art, meaning what was known before as described in section 102. If this difference is such that the subject matter as a whole would have been obvious at the time to a person skilled in the art, then the subject matter cannot be patented.

"That provision paraphrases language which has often been used in decisions of the courts, and the section is added to the statute for uniformity and definiteness. This section should have a stabilizing effect and minimize great departures which have appeared in some cases." H. R. Rep., *supra*, at 7; S. Rep., *supra*, at 6.

It is undisputed that this section was, for the first time, a statutory expression of an additional requirement for patentability, originally expressed in Hotchkiss. It also seems apparent that Congress intended by the last sentence of 103 to abolish the test it believed this Court announced in the controversial phrase "flash of creative genius," used in *Cuno Corp. v. Automatic Devices Corp.*, 314 U.S. 84 (1941). 7 [383 U.S. 1, 16]

It is contended, however, by some of the parties and by several of the amici that the first sentence of 103 was intended to sweep away judicial precedents and to lower the level of patentability. Others contend that the Congress intended to codify the essential purpose reflected in existing judicial precedents - the rejection of insignificant variations and innovations of a commonplace sort - and also to focus inquiries under 103 upon nonobviousness, rather than upon "invention," as a means of achieving more stability and predictability in determining patentability and validity.

The Reviser's Note to this section, 8 with apparent reference to Hotchkiss, recognizes that judicial requirements as to "lack of patentable novelty [have] been followed since at least as early as 1850." The note indicates that the section was inserted because it "may have some stabilizing effect, and also to serve as a basis for the addition at a later time of some criteria which may be worked out." To this same effect are the reports of both Houses, *supra*, which state that the first sentence [383 U.S. 1, 17] of the section "paraphrases language which has often been used in decisions of the courts, and the section is added to the statute for uniformity and definiteness."

We believe that this legislative history, as well as other sources, 9 shows that the revision was not intended by Congress to change the general level of patentable invention. We conclude that the section was intended merely as a codification of judicial precedents embracing the Hotchkiss condition, with congressional directions that inquiries into the obviousness of the subject matter sought to be patented are a prerequisite to patentability.

V.

Approached in this light, the 103 additional condition, when followed realistically, will permit a more practical test of patentability. The emphasis on nonobviousness is one of inquiry, not quality, and, as such, comports with the constitutional strictures.

While the ultimate question of patent validity is one of law, *A. & P. Tea Co. v. Supermarket Corp.*, *supra*, at 155, the 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances [383 U.S. 1, 18] surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. See Note. Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity, 112 U. Pa. L. Rev. 1169 (1964).

This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frames of reference as negligence and scienter, and should be amenable to a case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act.

While we have focused attention on the appropriate standard to be applied by the courts, it must be remembered that the primary responsibility for sifting out unpatentable material lies in the Patent Office. To await litigation is - for all practical purposes - to debilitate the patent system. We have observed a notorious difference between the standards applied by the Patent Office and by the courts. While many reasons can be adduced to explain the discrepancy, one may well be the free rein often exercised by Examiners in their use of the concept of "invention." In this connection we note that the Patent Office is confronted with a most difficult task. Almost 100,000 applications for patents are filed each year. Of these, about 50,000 are granted and the backlog now runs well over 200,000. 1965 Annual Report of the Commissioner of Patents 13-14. This is itself a compelling reason for the Commissioner to strictly adhere to the 1952 Act as interpreted here. This would, we believe, not only expedite disposition but [383 U.S. 1, 19] bring about a closer concurrence between administrative and judicial precedent. 10

Although we conclude here that the inquiry which the Patent Office and the courts must make as to patentability must be beamed with greater intensity on the requirements of 103, it bears repeating that we find no change in the general strictness with which the overall test is to be applied. We have been urged to find in 103 a relaxed standard, supposedly a congressional reaction to the "increased standard" applied by this Court in its decisions over the last 20 or 30 years. The standard has remained invariable in this Court. Technology, however, has advanced - and with remarkable rapidity in the last 50 years. Moreover, the ambit of applicable art in given fields of science has widened by disciplines unheard of a half century ago. It is but an evenhanded application to require that those persons granted the benefit of a patent monopoly be charged with an awareness of these changed conditions. The same is true of the less technical, but still useful arts. He who seeks to build a better mousetrap today has a long path to tread before reaching the Patent Office.

VI.

We now turn to the application of the conditions found necessary for patentability to the cases involved here:

A. The Patent in Issue in No. 11, Graham v. John Deere Co.

This patent, No. 2,627,798 (hereinafter called the '798 patent) relates to a spring clamp which permits plow shanks to be pushed upward when they hit obstructions [383 U.S. 1, 20] in the soil, and then springs the shanks back into normal position when the obstruction is passed over. The device, which we show diagrammatically in the accompanying sketches (Appendix, Fig. 1), is fixed to the plow frame as a unit. The mechanism around which the controversy centers is basically a hinge. The top half of it, known as the upper plate (marked 1 in the sketches), is a heavy metal piece clamped to the plow frame (2) and is stationary relative to the plow frame. The lower half of the hinge, known as the hinge plate (3), is connected to the rear of the upper plate by a hinge pin (4) and rotates downward with respect to it. The shank (5), which is bolted to the forward end of the hinge plate (at 6), runs beneath the plate and parallel to it for about nine inches, passes through a stirrup (7), and then continues backward for several feet curving down toward the ground. The chisel (8), which does the actual plowing, is attached to the rear end of the shank. As the plow frame is pulled forward, the chisel rips through the soil, thereby plowing it. In the normal position, the hinge plate and the shank are kept tight against the upper plate by a spring (9), which is atop the upper plate. A rod (10) runs through the center of the spring, extending down through holes in both plates and the shank. Its upper end is bolted to the top of the spring while its lower end is hooked against the underside of the shank.

When the chisel hits a rock or other obstruction in the soil, the obstruction forces the chisel and the rear portion of the shank to move upward. The shank is pivoted (at 11) against the rear of the hinge plate and pries open the hinge against the closing tendency of the spring. (See sketch labeled "Open Position," Appendix, Fig. 1.) This closing tendency is caused by the fact that, as the hinge is opened, the connecting rod is pulled downward and the spring is compressed. When the obstruction [383 U.S. 1, 21] is passed over, the upward force on the chisel disappears and the spring pulls the shank and hinge plate back into their original position. The lower, rear portion of the hinge plate is constructed in the form of a stirrup (7) which brackets the shank, passing around and beneath it. The shank fits loosely into the stirrup (permitting a slight up and down play). The stirrup is designed to prevent the shank from recoiling away from the hinge plate, and thus prevents excessive strain on the shank near its bolted connection. The stirrup also girds the shank, preventing it from fishtailing from side to side.

In practical use, a number of spring-hinge-shank combinations are clamped to a plow frame, forming a set of ground-working chisels capable of withstanding the shock of rocks and other obstructions in the soil without breaking the shanks.

Background of the Patent.

Chisel plows, as they are called, were developed for plowing in areas where the ground is relatively free from rocks or stones. Originally, the shanks were rigidly attached to the plow frames. When such plows were used in the rocky, glacial soils of some of the Northern States, they were found to have serious defects. As the chisels hit buried rocks, a vibratory motion was set up and tremendous forces were transmitted to the shank near its connection to the frame. The shanks would break. Graham, one of the petitioners, sought to meet that problem, and in 1950 obtained a patent, U.S. No. 2,493,811 (hereinafter '811), on a spring clamp which solved some of the difficulties. Graham and his companies manufactured and sold the '811 clamps. In 1950, Graham modified the '811 structure and filed for a patent. That patent, the one in issue, was granted in 1953. This suit against competing plow manufacturers resulted from charges by petitioners that several of respondents' devices infringed the '798 patent. [383 U.S. 1, 22]

The Prior Art.

Five prior patents indicating the state of the art were cited by the Patent Office in the prosecution of the '798 application. Four of these patents, 10 other United States patents and two prior-use spring-clamp arrangements not of record in the '798 file wrapper were relied upon by respondents as revealing the prior art. The District Court and the Court of Appeals found that the prior art "as a whole in one form or another contains all of the mechanical elements of the 798 Patent." One of the prior-use clamp devices not before the Patent Examiner - Glencoe - was found to have "all of the elements."

We confine our discussion to the prior patent of Graham, '811, and to the Glencoe clamp device, both among the references asserted by respondents. The Graham '811 and '798 patent devices are similar in all elements, save two: (1) the stirrup and the bolted connection of the shank to the hinge plate do not appear in '811; and (2) the position of the shank is reversed, being placed in patent '811 above the hinge plate, sandwiched between it and the upper plate. The shank is held in place by the spring rod which is hooked against the bottom of the hinge plate passing through a slot in the shank. Other differences are of no consequence to our examination. In practice the '811 patent arrangement permitted the shank to wobble or fishtail because it was not rigidly fixed to the hinge plate; moreover, as the hinge plate was below the shank, the latter caused wear on the upper plate, a member difficult to repair or replace.

Graham's '798 patent application contained 12 claims. All were rejected as not distinguished from the Graham '811 patent. The inverted position of the shank was specifically rejected as was the bolting of the shank to the hinge plate. The Patent Office examiner found these to be "matters of design well within the expected skill of [383 U.S. 1, 23] the art and devoid of invention." Graham withdrew the original claims and substituted the two new ones which are substantially those in issue here. His contention was that wear was reduced in patent '798 between the shank and the heel or rear of the upper plate. ¹¹ He also emphasized several new features, the relevant one here being that the bolt used to connect the hinge plate and shank maintained the upper face of the shank in continuing and constant contact with the underface of the hinge plate.

Graham did not urge before the Patent Office the greater "flexing" qualities of the '798 patent arrangement which he so heavily relied on in the courts. The sole element in patent '798 which petitioners argue before us is the interchanging of the shank and hinge plate and the consequences flowing from this arrangement. The contention is that this arrangement - which petitioners claim is not disclosed in the prior art - permits the shank to flex under stress for its entire length. As we have sketched (see sketch, "Graham '798 Patent" in Appendix, Fig. 2), when the chisel hits an obstruction the resultant force (A) pushes the rear of the shank upward and the shank pivots against the rear of the hinge plate at (C). The natural tendency is for that portion of the shank between the pivot point and the bolted connection (i. e., between C and D) to bow downward and away from the hinge plate. The maximum distance [383 U.S. 1, 24] (B) that the shank moves away from the plate is slight - for emphasis, greatly exaggerated in the sketches. This is so because of the strength of the shank and the short - nine inches or so - length of that portion of the shank between (C) and (D). On the contrary, in patent '811 (see sketch, "Graham '811 Patent" in Appendix, Fig. 2), the pivot point is the upper plate at point (c); and while the tendency for the shank to bow between points (c) and (d) is the same as in '798, the shank is restricted because of the underlying hinge plate and cannot flex as freely. In practical effect, the shank flexes only between points (a) and (c), and not along the entire length of the shank, as in '798. Petitioners say that this difference in flex, though small, effectively absorbs the tremendous forces of the shock of obstructions whereas prior art arrangements failed.

The Obviousness of the Differences.

We cannot agree with petitioners. We assume that the prior art does not disclose such an arrangement as petitioners claim in patent '798. Still we do not believe that the argument on which petitioners' contention is bottomed supports the validity of the patent. The tendency of the shank to flex is the same in all cases. If free-flexing, as petitioners now argue, is the crucial difference above the prior art, then it appears evident that the desired result would be obtainable by not boxing the shank within the confines of the hinge. ¹² The only other effective place available in the arrangement was to attach it below the hinge plate and run it through a [383 U.S. 25] stirrup or bracket that would not disturb its flexing qualities. Certainly a person having ordinary skill in the prior art, given the fact that the flex in the shank could be utilized more effectively if allowed to run the entire

length of the shank, would immediately see that the thing to do was what Graham did, i. e., invert the shank and the hinge plate.

Petitioners' argument basing validity on the free-flex theory raised for the first time on appeal is reminiscent of *Lincoln Engineering Co. v. Stewart-Warner Corp.*, 303 U.S. 545 (1938), where the Court called such an effort "an afterthought. No such function . . . is hinted at in the specifications of the patent. If this were so vital an element in the functioning of the apparatus it is strange that all mention of it was omitted." At p. 550. No "flexing" argument was raised in the Patent Office. Indeed, the trial judge specifically found that "flexing is not a claim of the patent in suit . . ." and would not permit interrogation as to flexing in the accused devices. Moreover, the clear testimony of petitioners' experts shows that the flexing advantages flowing from the '798 arrangement are not, in fact, a significant feature in the patent. 13

We find no nonobvious facets in the '798 arrangement. The wear and repair claims were sufficient to overcome [383 U.S. 1, 26] the patent examiner's original conclusions as to the validity of the patent. However, some of the prior art, notably Glencoe, was not before him. There the hinge plate is below the shank but, as the courts below found, all of the elements in the '798 patent are present in the Glencoe structure. Furthermore, even though the position of the shank and hinge plate appears reversed in Glencoe, the mechanical operation is identical. The shank there pivots about the underside of the stirrup, which in Glencoe is above the shank. In other words, the stirrup in Glencoe serves exactly the same function as the heel of the hinge plate in '798. The mere shifting of the wear point to the heel of the '798 hinge plate from the stirrup of Glencoe - itself a part of the hinge plate - presents no operative mechanical distinctions, much less nonobvious differences.

B. The Patent in Issue in No. 37, Calmar, Inc. v. Cook Chemical Co., and in No. 43, Colgate-Palmolive Co v Cook Chemical Co.

The single patent 14 involved in these cases relates to a plastic finger sprayer with a "hold-down" lid used as a built-in dispenser for containers or bottles packaging liquid products, principally household insecticides. Only the first two of the four claims in the patent are involved here and we, therefore, limit our discussion to them. We do not set out those claims here since they are printed in 220 F. Supp., at 417-418.

In essence the device here combines a finger-operated pump sprayer, mounted in a container or bottle by means of a container cap, with a plastic overcap which screws over the top of and depresses the sprayer (see Appendix. [383 U.S. 1, 27] Fig. 3). The pump sprayer passes through the container cap and extends down into the liquid in the container; the overcap fits over the pump sprayer and screws down on the outside of a collar mounting or retainer which is molded around the body of the sprayer. When the overcap is screwed down on this collar mounting a seal is formed by the engagement of a circular ridge or rib located above the threads on the collar mounting with a mating shoulder located inside the overcap above its threads. 15 The overcap, as it is screwed down, depresses the pump plunger rendering the pump inoperable and when the seal is effected, any liquid which might seep into the overcap through or around the pump is prevented from leaking out of the overcap. The overcap serves also to protect the sprayer head and prevent damage to it during shipment or merchandising. When the overcap is in place it does not reach the cap of the container or bottle and in no way engages it since a slight space is left between those two pieces.

The device, called a shipper-sprayer in the industry, is sold as an integrated unit with the overcap in place enabling the insecticide manufacturer to install it on the container or bottle of liquid in a single operation in an automated bottling process. The ultimate consumer simply unscrews and discards the overcap, the pump plunger springs up and the sprayer is ready for use.

The Background of the Patent.

For many years manufacturers engaged in the insecticide business had faced a serious problem in developing sprayers that could be integrated with the containers or bottles in which the insecticides were marketed. Originally, insecticides were applied through the use of tin [383 U.S. 1, 28] sprayers, not supplied by the manufacturer. In 1947, Cook Chemical, an insecticide manufacturer, began to furnish its customers with plastic pump dispensers purchased from Calmar. The dispenser was an unpatented finger-operated device mounted in a perforated cardboard holder and hung over the neck of the bottle or container. It was necessary for the ultimate consumer to remove the cap of the container and insert and attach the sprayer to the latter for use.

Hanging the sprayer on the side of the container or bottle was both expensive and troublesome. Packaging for shipment had to be a hand operation, and breakage and pilferage as well as the loss of the sprayer during shipment and retail display often occurred. Cook Chemical urged Calmar to develop an integrated sprayer that could be mounted directly in a container or bottle during the automated filling process and that would not leak during shipment or retail handling. Calmar did develop some such devices but for various reasons they were not completely successful. The situation was aggravated in 1954 by the entry of Colgate-Palmolive into the insecticide trade with its product marketed in aerosol spray cans. These containers, which used compressed gas as a propellant to dispense the liquid, did not require pump sprayers.

During the same year Calmar was acquired by the Drackett Company. Cook Chemical became apprehensive of

its source of supply for pump sprayers and decided to manufacture its own through a subsidiary, Bakan Plastics, Inc. Initially, it copied its design from the unpatented Calmar sprayer, but an officer of Cook Chemical, Scoggin, was assigned to develop a more efficient device. By 1956 Scoggin had perfected the shipper-sprayer in suit and a patent was granted in 1959 to Cook Chemical as his assignee. In the interim Cook Chemical began to use Scoggin's device and also marketed [383 U.S. 1, 29] it to the trade. The device was well received and soon became widely used.

In the meanwhile, Calmar employed two engineers, Corsette and Cooprider, to perfect a shipper-sprayer and by 1958 it began to market its SS-40, a device very much similar to Scoggin's. When the Scoggin patent issued, Cook Chemical charged Calmar's SS-40 with infringement and this suit followed.

The Opinions of the District Court and the Court of Appeals.

At the outset it is well to point up that the parties have always disagreed as to the scope and definition of the invention claimed in the patent in suit. Cook Chemical contends that the invention encompasses a unique combination of admittedly old elements and that patentability is found in the result produced. Its expert testified that the invention was "the first commercially successful, inexpensive integrated shipping closure pump unit which permitted automated assembly with a container of household insecticide or similar liquids to produce a practical, ready-to-use package which could be shipped without external leakage and which was so organized that the pump unit with its hold-down cap could be itself assembled and sealed and then later assembled and sealed on the container without breaking the first seal." Cook Chemical stresses the long-felt need in the industry for such a device; the inability of others to produce it; and its commercial success - all of which, contends Cook, evidences the nonobvious nature of the device at the time it was developed. On the other hand, Calmar says that the differences between Scoggin's shipper-sprayer and the prior art relate only to the design of the overcap and that the differences are so inconsequential that the device as a whole would have been obvious at the time of its invention to a person having ordinary skill in the art. [383 U.S. 1, 30]

Both courts accepted Cook Chemical's contentions. While the exact basis of the District Court's holding is uncertain, the court did find the subject matter of the patent new, useful and nonobvious. It concluded that Scoggin "had produced a sealed and protected sprayer unit which the manufacturer need only screw onto the top of its container in much the same fashion as a simple metal cap." 220 F. Supp., at 418. Its decision seems to be bottomed on the finding that the Scoggin sprayer solved the long-standing problem that had confronted the industry. ¹⁶ The Court of Appeals also found validity in the "novel 'marriage' of the sprayer with the insecticide container" which took years in discovery and in "the immediate commercial success" which it enjoyed. While finding that the individual elements of the invention were "not novel per se" the court found "nothing in the prior art suggesting Scoggin's unique combination of these old features . . . as would solve the . . . problems which for years beset the insecticide industry." It concluded that "the . . . [device] meets the exacting standard required for a combination of old elements to rise to the level of patentable invention by fulfilling the long-felt need with an economical, efficient, utilitarian apparatus which achieved novel results and immediate commercial success." 336 F.2d, at 114.

The Prior Art.

Only two of the five prior art patents cited by the Patent Office Examiner in the prosecution of Scoggin's application are necessary to our discussion, i. e., Lohse [383 U.S. 1, 31] U.S. Patent No. 2,119,884 (1938) and Mellon U.S. Patent No. 2,586,687 (1952). Others are cited by Calmar that were not before the Examiner, but of these our purposes require discussion of only the Livingstone U.S. Patent No. 2,715,480 (1953). Simplified drawings of each of these patents are reproduced in the Appendix, Figs. 4-6, for comparison and description.

The Lohse patent (Fig. 4) is a shipper-sprayer designed to perform the same function as Scoggin's device. The differences, recognized by the District Court, are found in the overcap seal which in Lohse is formed by the skirt of the overcap engaging a washer or gasket which rests upon the upper surface of the container cap. The court emphasized that in Lohse "[t]here are no seals above the threads and below the sprayer head." 220 F. Supp., at 419.

The Mellon patent (Fig. 5), however, discloses the idea of effecting a seal above the threads of the overcap. Mellon's device, likewise a shipper-sprayer, differs from Scoggin's in that its overcap screws directly on the container, and a gasket, rather than a rib, is used to effect the seal.

Finally, Livingstone (Fig. 6) shows a seal above the threads accomplished without the use of a gasket or washer. ¹⁷ Although Livingstone's arrangement was designed to cover and protect pouring spouts, his sealing feature is strikingly similar to Scoggin's. Livingstone uses a tongue and groove technique in which the tongue, located on the upper surface of the collar, fits into a groove on the inside of the overcap. Scoggin employed the rib and shoulder seal in the identical position and with less efficiency because the Livingstone technique [383 U.S. 1, 32] is inherently a more stable structure, forming an interlock that withstands distortion of the overcap when subjected to rough handling. Indeed, Cook Chemical has now incorporated the Livingstone closure into its own shipper-sprayers as had Calmar in its SS-40.

The Invalidity of the Patent.

Let us first return to the fundamental disagreement between the parties. Cook Chemical, as we noted at the outset, urges that the invention must be viewed as the overall combination, or - putting it in the language of the statute - that we must consider the subject matter sought to be patented taken as a whole. With this position, taken in the abstract, there is, of course, no quibble. But the history of the prosecution of the Scoggin application in the Patent Office reveals a substantial divergence in respondent's present position.

As originally submitted, the Scoggin application contained 15 claims which in very broad terms claimed the entire combination of spray pump and overcap. No mention of, or claim for, the sealing features was made. All 15 claims were rejected by the Examiner because (1) the applicant was vague and indefinite as to what the invention was, and (2) the claims were met by Lohse. Scoggin canceled these claims and submitted new ones. Upon a further series of rejections and new submissions, the Patent Office Examiner, after an office interview, at last relented. It is crystal clear that after the first rejection, Scoggin relied entirely upon the sealing arrangement as the exclusive patentable difference in his combination. It is likewise clear that it was on that feature that the Examiner allowed the claims. In fact, in a letter accompanying the final submission of claims, Scoggin, through his attorney, stated that "agreement was reached between the Honorable Examiner and applicant's attorney relative to limitations which must be in the claims in [383 U.S. 1, 33] order to define novelty over the previously applied disclosure of Lohse when considered in view of the newly cited patents of Mellon and Darley, Jr." (Italics added.)

Moreover, those limitations were specifically spelled out as (1) the use of a rib seal and (2) an overcap whose lower edge did not contact the container cap. Mellon was distinguished, as was the Darley patent, *infra*, n. 18, on the basis that although it disclosed a hold-down cap with a seal located above the threads, it did not disclose a rib seal disposed in such position as to cause the lower peripheral edge of the overcap "to be maintained out of contacting relationship with [the container] cap . . . when . . . [the overcap] was screwed [on] tightly . . ." Scoggin maintained that the "obvious modification" of Lohse in view of Mellon would be merely to place the Lohse gasket above the threads with the lower edge of the overcap remaining in tight contact with the container cap or neck of the container itself. In other words, the Scoggin invention was limited to the use of a rib - rather than a washer or gasket - and the existence of a slight space between the overcap and the container cap.

It is, of course, well settled that an invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the Patent Office. *Hogg v. Emerson*, 11 How. 587 (1850); *Crawford v Heysinger*, 123 U.S. 589 (1887). Claims as allowed must be read and interpreted with reference to rejected ones and to the state of the prior art; and claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent. *Powers-Kennedy Co. v. Concrete Co.*, 282 U.S. 175, 185 -186 (1930); *Schriber Co. v. Cleveland Trust Co.*, 311 U.S. 211, 220 -221 (1940). [383 U.S. 1, 34]

Here, the patentee obtained his patent only by accepting the limitations imposed by the Examiner. The claims were carefully drafted to reflect these limitations and Cook Chemical is not now free to assert a broader view of Scoggin's invention. The subject matter as a whole reduces, then, to the distinguishing features clearly incorporated into the claims. We now turn to those features.

As to the space between the skirt of the overcap and the container cap, the District Court found:

"Certainly without a space so described, there could be no inner seal within the cap, but such a space is not new or novel, but it is necessary to the formation of the seal within the hold-down cap."

"To me this language is descriptive of an element of the patent but not a part of the invention. It is too simple, really, to require much discussion. In this device the hold-down cap was intended to perform two functions - to hold down the sprayer head and to form a solid tight seal between the shoulder and the collar below. In assembling the element it is necessary to provide this space in order to form the seal." 220 F Supp., at 420. (Italics added.)

The court correctly viewed the significance of that feature. We are at a loss to explain the Examiner's allowance on the basis of such a distinction. Scoggin was able to convince the Examiner that Mellon's cap contacted the bottle neck while his did not. Although the drawings included in the Mellon application show that the cap might touch the neck of the bottle when fully screwed down, there is nothing - absolutely nothing - which indicates that the cap was designed at any time to engage the bottle neck. It is palpably evident that Mellon embodies a seal formed by a gasket compressed [383 U.S. 1, 35] between the cap and the bottle neck. It follows that the cap in Mellon will not seal if it does not bear down on the gasket and this would be impractical, if not impossible, under the construction urged by Scoggin before the Examiner. Moreover, the space so strongly asserted by Cook Chemical appears quite plainly on the Livingstone device, a reference not cited by the Examiner.

The substitution of a rib built into a collar likewise presents no patentable difference above the prior art. It was fully disclosed and dedicated to the public in the Livingstone patent. Cook Chemical argues, however, that Livingstone is not in the pertinent prior art because it relates to liquid containers having pouring spouts rather than pump sprayers. Apart from the fact that respondent made no such objection to similar references cited by

the Examiner, 18 so restricted a view of the applicable prior art is not justified. The problems confronting Scoggin and the insecticide industry were not insecticide problems; they were mechanical closure problems. Closure devices in such a closely related art as pouring spouts for liquid containers are at the very least pertinent references. See, II Walker on Patents 260 (Deller ed. 1937).

Cook Chemical insists, however, that the development of a workable shipper-sprayer eluded Calmar, who had long and unsuccessfully sought to solve the problem. And, further, that the long-felt need in the industry for a device such as Scoggin's together with its wide commercial success supports its patentability. These legal inferences [383 U.S. 1, 36] or subtests do focus attention on economic and motivational rather than technical issues and are, therefore, more susceptible of judicial treatment than are the highly technical facts often present in patent litigation. See Judge Learned Hand in Reiner v. I. Leon Co., 285 F.2d 501, 504 (1960). See also Note. Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity, 112 U. Pa. L. Rev. 1169 (1964). Such inquiries may lend a helping hand to the judiciary which, as Mr. Justice Frankfurter observed, is most ill-fitted to discharge the technological duties cast upon it by patent legislation. Marconi Wireless Co. v. United States, 320 U.S. 1, 60 (1943). They may also serve to "guard against slipping into use of hindsight." Monroe Auto Equipment Co. v. Heckethorn Mfg. & Sup. Co., 332 F.2d 406, 412 (1964), and to resist the temptation to read into the prior art the teachings of the invention in issue.

However, these factors do not, in the circumstances of this case, tip the scales of patentability. The Scoggin invention, as limited by the Patent Office and accepted by Scoggin, rests upon exceedingly small and quite nontechnical mechanical differences in a device which was old in the art. At the latest, those differences were rendered apparent in 1953 by the appearance of the Livingstone patent, and unsuccessful attempts to reach a solution to the problems confronting Scoggin made before that time became wholly irrelevant. It is also irrelevant that no one apparently chose to avail himself of knowledge stored in the Patent Office and readily available by the simple expedient of conducting a patent search - a prudent and nowadays common preliminary to well organized research. Mast, Foos & Co. v. Stover Mfg. Co., 177 U.S. 485 (1900). To us, the limited claims of the Scoggin patent are clearly evident from the prior art as it stood at the time of the invention. [383 U.S. 1, 37]

We conclude that the claims in issue in the Scoggin patent must fall as not meeting the test of 103, since the differences between them and the pertinent prior art would have been obvious to a person reasonably skilled in that art.

The judgment of the Court of Appeals in No. 11 is affirmed. The judgment of the Court of Appeals in Nos. 37 and 43 is reversed and the cases remanded to the District Court for disposition not inconsistent with this opinion.

It is so ordered.

MR. JUSTICE STEWART took no part in the consideration or decision of Nos. 37 and 43.

MR. JUSTICE FORTAS took no part in the consideration or decision of these cases. [383 U.S. 1, 38]

Footnotes

[Footnote 1] The provision appears in the Constitution spliced together with the copyright provision, which we omit as not relevant here. See H. R. Rep. No. 1923, 82d Cong., 2d Sess., at 4 (1952); DeWolf, *An Outline of Copyright Law*, p. 15 (Boston, 1925).

[Footnote 2] "Stable ownership is the gift of social law, and is given late in the progress of society. It would be curious then, if an idea, the fugitive fermentation of an individual brain, could, of natural right, be claimed in exclusive and stable property. If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses [383 U.S. 1, 9] the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation. Inventions then cannot, in nature, be a subject of property. Society may give an exclusive right to the profits arising from them, as an encouragement to men to pursue ideas which may produce utility, but this may or may not be done, according to the will and convenience of the society, without claim or complaint from any body" VI *Writings of Thomas Jefferson*, at 180-181 (Washington ed.).

[Footnote 3] "[A] machine of which we are possessed, might be applied by every man to any use of which it is susceptible." Letter to Isaac McPherson, *supra*, at 181. "[A] change of material should not give title to a patent. As the making a ploughshare of cast rather than of wrought iron; a comb of iron instead of horn or of ivory . . ." *Ibid.* "[A] mere change of form should give no right to a patent, as a high-quartered shoe instead of a low one; a round

hat instead of a three-square; or a square bucket instead of a round one." *Id.*, at 181-182. "[A combined use of old implements.] A man has a right to use a saw, an axe, a plane separately; may he not combine their uses on the same piece of wood?" Letter to Oliver Evans (Jan. 1814), VI Writings of Thomas Jefferson, at 298 (Washington ed.).

[Footnote 4] In historical retrospect, the specific result in Hotchkiss flows directly from an application of one of the rules of the original board of "Commissioners," n. 3, second rule, *supra*.

[Footnote 5] " 101. Inventions patentable "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." " 102. Conditions for patentability; novelty and loss of right to patent "A person shall be entitled to a patent unless - "(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or "(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in [383 U.S. 1, 13] this country, more than one year prior to the date of the application for patent in the United States, or "(c) he has abandoned the invention, or "(d) the invention was first patented or caused to be patented by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application filed more than twelve months before the filing of the application in the United States, or "(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or "(f) he did not himself invent the subject matter sought to be patented, or "(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other." The precursors of these sections are to be found in the Act of February 21, 1793, c. 11, 1 Stat. 318; Act of July 4, 1836, c. 357, 5 Stat. 117; Act of July 8, 1870, c. 230, 16 Stat. 198; Rev. Stat. 4886 (1874).

[Footnote 6] The corresponding provision in the preliminary draft was titled "Conditions for patentability, lack of invention" (italics added), Proposed Revision and Amendment of the Patent Laws, Preliminary Draft with Notes. House Committee on the Judiciary (Committee Print, 1950).

[Footnote 7] The sentence in which the phrase occurs reads: "[T]he new device, however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling." At p. 91. Although some writers and lower courts found in the language connotations as to the frame of mind of the inventors, none were so intended. The opinion approved Hotchkiss specifically, and the reference to "flash of creative genius" was but a rhetorical embellishment of language going back to 1833. Cf. "exercise of genius," *Shaw v. Cooper*, 7 Pet. 292; "inventive genius," *Reckendorfer v. Faber*, 92 U.S. 347 (1876); *Concrete Appliances Co. v. Gomery*, 269 U.S. 177; "flash of thought," *Densmore v. Scofield*, 102 U.S. 375 (1880); "intuitive genius," *Potts v. Creager*, 155 U.S. 597 (1895). Rather than establishing a more exacting standard, Cuno merely rhetorically restated the requirement that the subject matter sought to be patented must be beyond the skill of the calling. It was the device, not [383 U.S. 1, 13] the invention, that had to reveal the "flash of creative genius." See *Boyajian, The Flash of Creative Genius. An Alternative Interpretation*, 25 J. Pat. Off. Soc. 776, 780, 781 (1943); *Pacific Contact Laboratories, Inc. v. Solex Laboratories, Inc.*, 209 F.2d 529, 533; *Brown & Sharpe Mfg. Co. v. Kar Engineering Co.*, 154 F.2d 48, 51-52; *In re Shortell*, 31 C. C. P. A. (Pat.) 1062, 1069, 142 F.2d 292, 295-296.

[Footnote 8] "There is no provision corresponding to the first sentence explicitly stated in the present statutes, but the refusal of patents by the Patent Office, and the holding of patents invalid by the courts, on the ground of lack of invention or lack of patentable novelty has been followed since at least as early as 1850. This paragraph is added with the view that an explicit statement in the statute may have some stabilizing effect, and also to serve as a basis for the addition at a later time of some criteria which may be worked out. "The second sentence states that patentability as to this requirement is not to be negated by the manner in which the invention was made, that is, it is immaterial whether it resulted from long toil and experimentation or from a flash of genius."

[Footnote 9] See Efforts to Establish a Statutory Standard of Invention, Study No. 7, Senate Subcommittee on Patents, Trademarks, and Copyrights, 85th Cong., 1st Sess. (Committee Print, 1958); Hearings, Subcommittee No. 3, House Committee on the Judiciary, on H. R. 3760, 82d Cong., 1st Sess. (1951).

[Footnote 10] The President has appointed a Commission on the Patent System. Executive Order No. 11215, 30 Fed. Reg. 4661 (April 10, 1965). It is hoped that its studies may develop more efficient administrative procedures and techniques that will further expedite dispositions and at the same time insure the strict application of appropriate tests of patentability.

[Footnote 11] In '811, where the shank was above the hinge plate, an upward movement of the chisel forced the shank up against the underside of the rear of the upper plate. The upper plate thus provided the fulcrum about which the hinge was pried open. Because of this, as well as the location of the hinge pin, the shank rubbed against the heel of the upper plate causing wear both to the plate and to the shank. By relocating the hinge pin and by placing the hinge plate between the shank and the upper plate, as in '798, the rubbing was eliminated and

the wear point was changed to the hinge plate, a member more easily removed or replaced for repair.

[Footnote 12] Even petitioners' expert testified to that effect: "Q. Given the same length of the forward portion of the clamp . . . you would anticipate that the magnitude of flex [in '798] would be precisely the same or substantially the same as in 811, wouldn't you? "A. I would think so."

[Footnote 13] "Q. . . Do you regard the small degree of flex in the forward end of the shank that lies between the pivot point and the point of spring attachment to be of any significance or any importance to the functioning of a device such as 798? A. Unless you are approaching the elastic limit, I think this flexing will reduce the maximum stress at the point of pivot there, where the maximum stress does occur. I think it will reduce that. I don't know how much. "Q. Do you think it is a substantial factor, a factor of importance in the functioning of the structure? A. Not a great factor, no." The same expert previously testified similarly in *Jeoffroy Mfg., Inc. v. Graham*, 219 F.2d 511.

[Footnote 14] The patent is U.S. No. 2,870,943 issued in 1959 to Cook Chemical Co. as assignee of Baxter I Scoggin, Jr., the inventor. In No. 37, Calmar is the manufacturer of an alleged infringing device, and, in No. 43, Colgate is a customer of Calmar and user of its device.

[Footnote 15] Our discussion here relates to the overcap seal. The container itself is sealed in the customary way through the use of a container gasket located between the container and the container cap.

[Footnote 16] "By the same reasoning, may it not also be said that if [the device] solved a long-sought need, it was likewise novel? If it meets the requirements of being new, novel and useful, it was the subject of invention, although it may have been a short step, nevertheless it was the last step that ended the journey. The last step is the one that wins and he who takes it when others could not, is entitled to patent protection." 220 F. Supp. at 421

[Footnote 17] While the sealing feature was not specifically claimed in the Livingstone patent, it was disclosed in the drawings and specifications. Under long-settled law the feature became public property. *Miller v. Brass Co.*, 104 U.S. 350, 352 (1882).

[Footnote 18] In addition to Livingstone and Mellon, the Examiner cited Slade, U.S. Patent No. 2,844,290 (hold-down cap for detergent cans having a pouring spout); Nilson, U.S. Patent No. 2,118,222 (combined cap and spout for liquid dispensing containers); Darley, Jr., U.S. Patent No. 1,447,712 (containers for toothpaste, cold creams and other semi-liquid substances). [383 U.S. 1, 39]

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§ 2144.09 for examples of reasoning supporting obviousness rejections.

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986). A statement of a rejection that includes a large number of rejections must explain with reasonable specificity at least one rejection, otherwise the examiner procedurally fails to establish a *prima facie* case of obviousness. *Ex parte Blanc*, 13 USPQ2d 1383 (Bd. Pat. App. & Inter. 1989) (Rejection based on nine references which included at least 40 prior art rejections without explaining any one rejection with reasonable specificity was reversed as procedurally failing to establish a *prima facie* case of obviousness.).

If the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not.

When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the patentability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, including the evidence submitted by the examiner and the evidence submitted by the applicant. A decision to make or maintain a rejection in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was

reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

See *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984) for a discussion of the proper roles of the examiner's *prima facie* case and applicant's rebuttal evidence in the final determination of obviousness. See MPEP § 706.02(j) for a discussion of the proper contents of a rejection under 35 U.S.C. 103.

2143 Basic Requirements of a *Prima Facie* Case of Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2143.01 Suggestion or Motivation To Modify the References [R-2]

THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991) (Prior art patent to Carlisle disclosed controlling and minimizing bubble oscillation for chemical explosives used in marine seismic exploration by spacing seismic sources close enough to allow the bubbles to intersect before reaching their maximum radius so the secondary pressure pulse was reduced. An article published several years later by Knudsen opined that the Carlisle technique does not yield appreciable improvement in bubble oscillation suppression. However, the article did not test the Carlisle technique under comparable conditions because Knudsen did not use Carlisle's spacing or seismic source. Furthermore, where the Knudsen model most closely approximated the patent technique there was a 30% reduction of the secondary pressure pulse. On these facts, the court found that the Knudsen article would not have deterred one of ordinary skill in the art from using the Carlisle patent teachings.).

FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of

varying slope not suggested by combination of prior art references).

FACT THAT THE CLAIMED INVENTION IS WITHIN THE CAPABILITIES OF ONE OF ORDINARY SKILL IN THE ART IS NOT SUFFICIENT BY ITSELF TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

A statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) (Court reversed obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention): *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.).

THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (Claimed device was a blood filter assembly for use during medical procedures wherein both the inlet and outlet for the blood were located at the bottom end of the filter assembly, and wherein a gas vent was present at the top of the filter assembly. The prior art reference taught a liquid strainer for removing dirt and water from gasoline and other light oils wherein the inlet and outlet were at the top of the device, and wherein a pet-cock (stopcock) was located at the bottom of the device for periodically removing the

In re Gordon et al. (CA FC) 221 USPQ 1125 (5/10/1984)

In re Gordon et al.

U.S. Court of Appeals Federal Circuit 221 USPQ 1125

Decided May 10, 1984
No. 83-1281

Headnotes

PATENTS

1. Patentability/Validity -- Obviousness -- References and claims as whole (§ 115.0904)

Question is not whether patentable distinction is created by viewing prior art apparatus from one direction and claimed apparatus from another, but whether it would have been obvious from fair reading of prior art reference as whole to turn prior art apparatus upside down; mere fact that prior art could be modified by turning apparatus upside down does not make modification obvious unless prior art suggested desirability of modification.

Particular patents -- Blood Filters

Gordon and Sutherland. Blood Filter Assembly. Rejection of claims 1-3 and 5-7 reversed.

Case History and Disposition:

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Application for patent of Lucas S. Gordon and Karl M. Sutherland. Serial No. 124,312, filed Feb. 25, 1980. From decision rejecting claims 1-3 and 5-7, applicants appeal. Reversed.

Attorneys:

James W. Gieriak, Los Angeles, Calif. (Bradford J. Duft, Los Angeles, Calif., on the brief) for appellants.

John F. Pitrelli (Joseph F. Nakamura and John W. Dewhurst, on the brief) for Patent and Trademark Office.

Judge:

Before Bennett and Miller, Circuit Judges and Skelton, Senior Circuit Judge.

Opinion Text

Opinion By:

Miller, Circuit Judge.

This appeal is from the decision of the United States Patent and Trademark Office ("PTO") Board of Appeals ("board") affirming the examiner's rejection of appellants' claims 1-3 and 5-7 as unpatentable under 35 U.S.C. §103. We reverse.

The Invention

Appellants claim a "blood filter assembly" used during surgery and other medical procedures involving the handling of blood to remove clots, bone debris, tissue, or other foreign materials from blood before it is returned to a patient's body. Unlike blood filter assemblies widely used in the prior art, the device of the present invention permits both entry of the blood into, and ultimate discharge of the blood out of, the *bottom* end of the filter assembly, as shown below. 2

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

The blood filter assembly comprises a shell 1 provided with blood inlet 3 and blood outlet 4. Between the blood inlet and the blood outlet is filter medium 6 positioned within the filter medium core 7.

The location of blood inlet 3 is such that the incoming blood is directed along a spirally upward path by the inner wall of the shell. Further, the location of the blood inlet at the bottom end of the filter assembly facilitates the removal of gas bubbles by allowing them to rise upwardly out of the blood. The gas bubbles so removed are released from the blood filter assembly by means of a gas vent 5 located in the region of the top end of the assembly.

Independent claim 1, from which the other appealed claims depend, is illustrative:

Blood filter assembly comprising:

- a. a shell having a first top end and a second bottom end,
- b. a blood inlet located in the region of said bottom end and opening into said bottom end,
- c. a blood outlet located in the region of said bottom end,
- d. a gas vent located in the region of said top end, and
- e. a blood filter medium located between said blood inlet and said blood outlet,

said blood inlet being located and configured in a manner capable of directing incoming blood in a generally spiral path within said shell.

Claims 2, 3, and 5-7 further define the shape of the shell, the shape of the filter medium, and the nature of the material used as the filter medium.

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Prior Art

The sole reference relied upon by the board is United States Patent No. 1,175,948, issued March 21, 1916, to French. French discloses a liquid strainer for removing dirt and water from gasoline and other light oils. As shown below, the inlet 4 and outlet 5 of the French device are both at the *top* end of the device.

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

A continuous helical tooth or thread 8 is formed integral with the inner wall of shell 1 and imparts to the incoming liquid a whirling motion, which gives the liquid a scouring action to help clean the surface of a metal screen filter 21 and guides unwanted dirt and water downwardly into a pocket 9 in the bottom of the shell. A pair of shelves 10 and 11, projecting inwardly and downwardly from the inner wall of the shell, further assists the entrance of dirt and water into the pocket 9 and prevents their being drawn back into the main chamber 12. The reference expressly states, "gravity assists in the separation of heavier oils or water." A pet-cock 13, projecting vertically downward from the bottom of the pocket is used to remove the collected dirt and water periodically. The top of the liquid strainer is completely closed by gland 3 except for the inlet and outlet openings.

Board Opinion

The board held that the appealed claims were drawn to an apparatus which "would have at least been rendered *prima facie* obvious to one of ordinary skill in the art by the apparatus disclosed in French." The board's reasoning was that it would have been obvious to turn the French device upside down to have both the inlet and outlet at the bottom, rather than at the top; and to employ French's "pet-cock" as the claimed "gas vent." In the board's opinion, no patentable distinction was created by viewing French's apparatus from one direction and the claimed apparatus from another.

ANALYSIS

¶ We are persuaded that the board erred in its conclusion of *prima facie* obviousness. The question is not whether a patentable distinction is created by viewing a prior art apparatus from one direction and a claimed apparatus from another, but, rather, whether it would have been obvious from a fair reading of the prior art reference as a whole to turn the prior art apparatus upside down. French teaches a liquid strainer which relies, at least in part, upon the assistance of gravity to separate undesired dirt and water from gasoline and other light oils. Therefore, it is not seen that French would have provided any motivation to one of ordinary skill in the art to employ the French apparatus in an upside down orientation. The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. See *Carl Schenck, A.G. v. Nortron Corp.*, 713 F.2d 782, 787, 218 USPQ 698, 702 (Fed. Cir. 1983), and *In re Sernaker*, 702 F.2d 989, 995-96, 217 USPQ 1, 6-7 (Fed. Cir. 1983), both citing *In re Imperato*, 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973).

Indeed, if the French apparatus were turned upside down, it would be rendered inoperable for its intended purpose. The gasoline to be filtered would be trapped in pocket 9, and the water French seeks to separate would flow freely out of the outlet 5. Further, unwanted dirt would build up in the space between the wall of shell 1 and screen 21, so that, in time, screen 21 would become clogged unless a drain valve, such as pet-cock 13, were re-introduced at the new "bottom" of the apparatus. See *In re Schulpen*, 390 F.2d 1009, 1013, 157 USPQ 52, 55 (CCPA 1968). In effect, French teaches away from the board's proposed modification.

Because the PTO has failed to establish a *prima facie* case of obviousness, the rejection of claims 1-3 and 5-7 as unpatentable under 35 U.S.C. §103 must be *reversed*. 3

Reversed

Footnotes

Footnote 1. In application Serial No. 124,312, filed February 25, 1980, for a "Blood Filter."

Footnote 2. Extraneous numbers have been removed from this and the subsequent drawing for clarification.

Footnote 3. Because our holding that the PTO has failed to establish a *prima facie* case is dispositive, it is unnecessary to reach other arguments raised by appellants.

- End of Case -

King argues that the wide disparity in punishments for crimes involving crack cocaine and those involving powder cocaine violates the Constitution's guarantee of equal protection in that it has a discriminatory impact on black persons. King argues that crack cocaine is predominantly used by blacks, and that powder cocaine is predominantly used by whites.¹ Thus, he argues that blacks are punished much more severely for using cocaine than are whites. The parties agree that the appropriate level of scrutiny is the rational basis test, since King has not alleged a discriminatory intent on the part of Congress. Thus, we apply the rational basis test.²

1. To pass the rational basis test, the legislation must have a legitimate purpose, and it must have been reasonable for lawmakers to believe that the use of the challenged classification would promote that purpose. *Western & Southern Life Insurance Co. v. State Board of Equalization*, 451 U.S. 648, 668, 101 S.Ct. 2070, 68 L.Ed.2d 514 (1981). We readily conclude that the sentencing scheme in question withstands scrutiny under the rational basis standard. The fact that crack cocaine is more addictive, more dangerous, and can be sold in smaller quantities than powder cocaine is sufficient reason for Congress to provide harsher penalties for its possession. *United States v. Watson*, 953 F.2d 895, 898 (5th Cir.), cert. denied, — U.S. —, 112 S.Ct. 1989, 118 L.Ed.2d 586 (1989). See also *United States v. Solomon*, 848 F.2d 156, 157 (11th Cir. 1988) (no heightened scrutiny of mandatory minimum sentence for possession of cocaine base with intent to distribute because § 841(b)(1) does not discriminate on the basis of a suspect classification or a fundamental right).
2. King has presented no evidence to support his claim, although he points to statistics utilized by the Minnesota Supreme Court in *Russell*, 477 N.W.2d 886 (Minn. 1991). In that case, the trial court found that in 1988, 96.6% of all persons charged with possession of cocaine base in Minnesota were black, and that 79.6% of cocaine were white. For the purposes of argument, we will assume that the statistical data gathered in Minnesota is similar to that which would be found in this circuit.

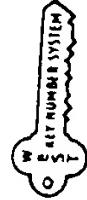
3. King also argues that the state and federal law enforcement agencies engaged in "de facto" sentencing, violating his right to due process. King contends that state criminal charges against him were dismissed in favor of prosecution in federal court, where the sentences for crimes involving crack cocaine are much harsher than in state court. King was charged with violations of both federal and state law. Because he could have been prosecuted in both state and federal court, we cannot conclude that his rights were violated because he was prosecuted only in federal court rather than state court.
4. The other circuits that have addressed this issue have applied the rational basis test. See *United States v. Watson*, 953 F.2d 895, 898 (5th Cir.), cert. denied, — U.S. —, 112 S.Ct. 1989, 939 F.2d 659, 664 (8th Cir. 1991); *United States v. Thomas*, 900 F.2d 37, 39 (4th Cir. 1990); *United States v. Cyrus*, 890 F.2d 1245, 1248 (D.C. Cir. 1989).

IN RE FRITCH

Cite as 972 F.2d 1260 (Fed. Cir. 1992)
ous unless prior art suggested desirability
of modification.

Reversed.

AFFIRMED.



1. Patents § 32
In proceedings before Patent and Trademark Office, examiner bears burden of establishing prima facie case of obviousness based on upon prior art; patent applicant may then attack examiner's prima facie determination as improperly made out, or applicant may present objective evidence tending to support conclusion of nonobviousness. 35 U.S.C.A. § 103.

2. Patents § 16.4, 16.7
Claimed invention for landscape edging apparatus and method was not invalid based on obviousness; mere fact that prior art could be modified in manner suggested by examiner did not make modification obvious unless prior art suggested desirability of modification. 35 U.S.C.A. § 103.

3. Patents § 16(1)
It is impermissible to use claimed invention as instruction manual or "template" to piece together teachings of prior art so that claimed invention is rendered obvious and unpatentable. 35 U.S.C.A. § 103.
In his final rejection, the Examiner rejected claims 1-24 and 27-30 of Fritch's application as unpatentable for obviousness under 35 U.S.C. § 103. Fritch appealed the final rejection to the Board. The Board affirmed the rejection as to claims 1-24, 29 and 30, entered a new ground of rejection for claim 27, and reversed as to claim 28. The Board agreed with the Examiner that the teachings of the Wilson and Hendrix patents rendered the subject matter of independent claims 1, 18, 24, and 29 obvious to one of ordinary skill in the art. Fritch does not appeal the Board's disposition as to claims 27 and 28, and at oral argument withdrew the appeal as to claim 8. The claims remaining in this appeal are 1-7, 9-24, 29 and 30.

Background
In his final rejection, the Examiner rejected claims 1-24 and 27-30 of Fritch's application as unpatentable for obviousness under 35 U.S.C. § 103. Fritch appealed the final rejection to the Board. The Board affirmed the rejection as to claims 1-24, 29 and 30, entered a new ground of rejection for claim 27, and reversed as to claim 28. The Board agreed with the Examiner that the teachings of the Wilson and Hendrix patents rendered the subject matter of independent claims 1, 18, 24, and 29 obvious to one of ordinary skill in the art. Fritch does not appeal the Board's disposition as to claims 27 and 28, and at oral argument withdrew the appeal as to claim 8. The claims remaining in this appeal are 1-7, 9-24, 29 and 30.

The Fritch Invention

The invention claimed by Fritch involves a landscape edging device which includes a planar base portion and an upwardly extending retainer portion. The base portion is elongate, thin, flexible and has a planar bottom surface conformable to a varying slope ground surface. One longitudinal

Before PLAGER, Circuit Judge, SMITH, Senior Circuit Judge, and RADER, Circuit Judge.
EDWARD S. SMITH, Senior Circuit Judge.
John R. Fritch (Fritch) appeals the 27 February 1991 decision of the Patent and

1. Serial No. 06/838,721

¹ King argues that the wide disparity in punishments for crimes involving crack cocaine and those involving powder cocaine violates the Constitution's guarantee of equal protection in that it has a discriminatory impact on black persons. King argues that crack cocaine is predominantly used by blacks, and that powder cocaine is predominantly used by whites.¹ Thus, he argues that blacks are punished much more severely for using cocaine than are whites. The parties agree that the appropriate level of scrutiny is the rational basis test, since King has not alleged a discriminatory intent on the part of Congress. Thus, we apply the rational basis test.²

² In re John R. Fritch, No. 91-1318, United States Court of Appeals, Federal Circuit. Aug. 11, 1992.

Charles L. Gholz, Olson, Spivak, McClelland, Maier & Neustadt, Arlington, Va., argued, for appellant. John R. Fritch, Corpus Christi, Tex., was on the brief.

Jameson Lee, Associate Sol., Arlington, Va., argued, for appellee. With him on the brief was Fred E. McElveen, Sol. Of counsel was Richard E. Schafer.

Before PLAGER, Circuit Judge, SMITH, Senior Circuit Judge, and RADER, Circuit Judge.
EDWARD S. SMITH, Senior Circuit Judge.
John R. Fritch (Fritch) appeals the 27 February 1991 decision of the Patent and

¹ King also argues that the state and federal law enforcement agencies engaged in "de facto" sentencing, violating his right to due process. King contends that state criminal charges against him were dismissed in favor of prosecution in federal court, where the sentences for crimes involving crack cocaine are much harsher than in state court. King was charged with violations of both federal and state law. Because he could have been prosecuted in both state and federal court, we cannot conclude that his rights were violated because he was prosecuted only in federal court rather than state court.

edge of the base portion serves as a mowing strip and the other serves as a retaining flange for landscape fill. The upwardly extending retainer portion is integrally connected (e.g., fused) to the base portion and defines a longitudinally extending enclosed space. The Fritch invention is intended to be used as a retainer for landscape fill in order to separate unmowable landscape fill from the mowable lawn. It may also be used to secure a landscaping sheet to the ground, or to function as guards at the base of a fence. Independent claims 1 and 13 on appeal are representative of the subject matter claimed:

1. A landscape edging strip formed in its entirety of a thin gauge, flexible material and conformable to a ground surface of varying slope, comprising a continuous elongate, thin gauge, flexible base portion having a planar bottom surface conformable to said varying slope ground surface; a thin gauge, elongate retainer portion integral with said base portion and extending upwardly therefrom and transversely thereover to overlie a portion of said base portion; all of said retainer portion defining a longitudinally extending enclosed space; said retainer portion being integrally connected to said base portion at a transverse location between the longitudinal edges of said base portion, thereby defining a longitudinally extending retaining flange on one side of said retainer portion and a mowing strip on the other side of said retainer portion.

• • • •

13. A landscape edging strip formed in its entirety from thin gauge, flexible material and conformable to a ground surface of varying slope, comprising a continuous elongate, thin gauge, flexible base portion having a planar bottom surface conformable to said varying slope ground surface; a thin gauge, elongate retainer portion integral with said base portion and extending upwardly therefrom and transversely thereover to overlie a portion of said base portion; all of said retainer portion defining a longitudinally extending enclosed space; said retainer portion being integrally connected to said base portion adjacent one longitudinal edge of said base portion to define a mowing strip adjacent the other longitudinal edge of said base portion.

• • • •

The critical language in Fritch's independent claims is that the device is to be, in its entirety, both flexible and "conformable to a ground surface of varying slope". These limitations, although located in the claims' preambles, "are necessary to give meaning to the claim[s] and properly define the invention". Figure 1 from Fritch's drawings is reproduced below:

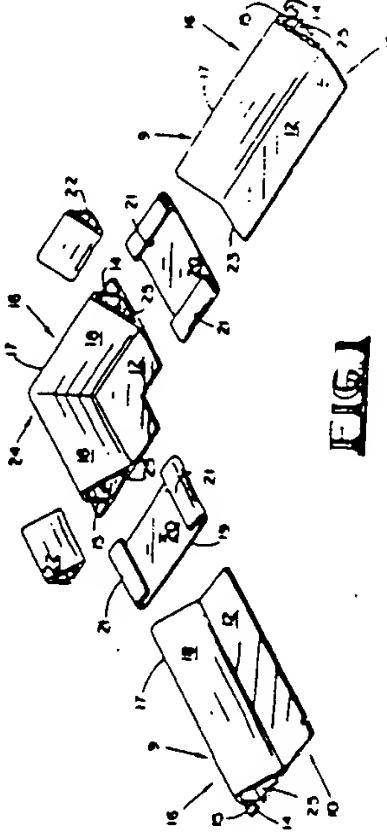


FIG. 1

Cite No. 972 F.2d 1260 (Fed. Cir. 1992)

The Prior Art

13. A landscape edging strip formed in its entirety from thin gauge, flexible material and conformable to a ground surface of varying slope which may be broken off when not needed or wanted. Between the mowing strip and the flange, and extending vertically from the body portion is an anchoring leg. Located above the anchoring leg is the body portion which contains a water conduit and sprinkler head assembly. The device is intended to be used adjacent to the borders of walks and plant beds. Figures 1 and 4 from Wilson's drawings are reproduced below:

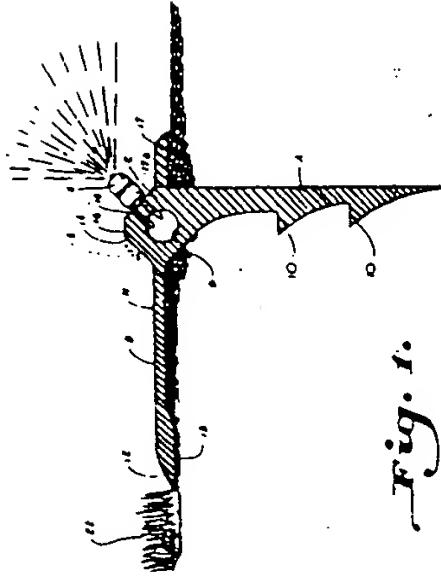


FIG. 1.

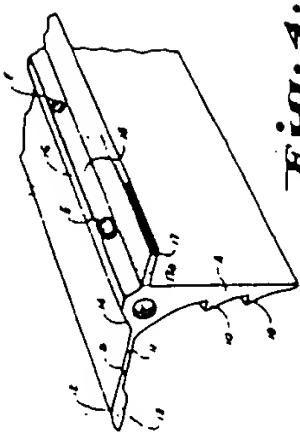


FIG. 4.

The Wilson patent relied upon by the Examiner and the Board is entitled "Grass Edging and Watering Device".³ The embodiment of the Wilson device includes a substantially flat mowing strip extending horizontally from a longitudinally extending drawings are reproduced below:

a. The Wilson Patent

The Wilson patent relied upon by the Examiner and the Board is entitled "Grass Edging and Watering Device".³ The embodiment of the Wilson device includes a substantially flat mowing strip extending horizontally from a longitudinally extending

b. The Hendrix Patent

The Hendrix device is composed of elongated, flexible strips having substantially C-shaped cross-section. The bottom lip of the device is to be wider than the top lip in order to facilitate fastening the device to the ground. The device will fit most gentle contours, and the top lip will yield laterally to build-up of gravel until the gravel can be redistributed. The concave portion of the strip is installed such that it faces the material to be retained in place. Hendrix contemplates that the retainer will be used

3. U.S. Patent No. 3,485,449.

4. U.S. Patent No. 4,349,596.

2. *Perkin Elmer Corp. v. Comptusvision Corp.* 732 F.2d 898, 896, 221 USPQ 669, 675 (Fed.Cir. 1984).

3. U.S. Patent No. 3,485,449.

4. U.S. Patent No. 4,349,596.

in retaining gravel in driveways, lining flower beds, or on the shoulders of asphalt highways. Figure 1 of Hendrix's drawings is reproduced below:

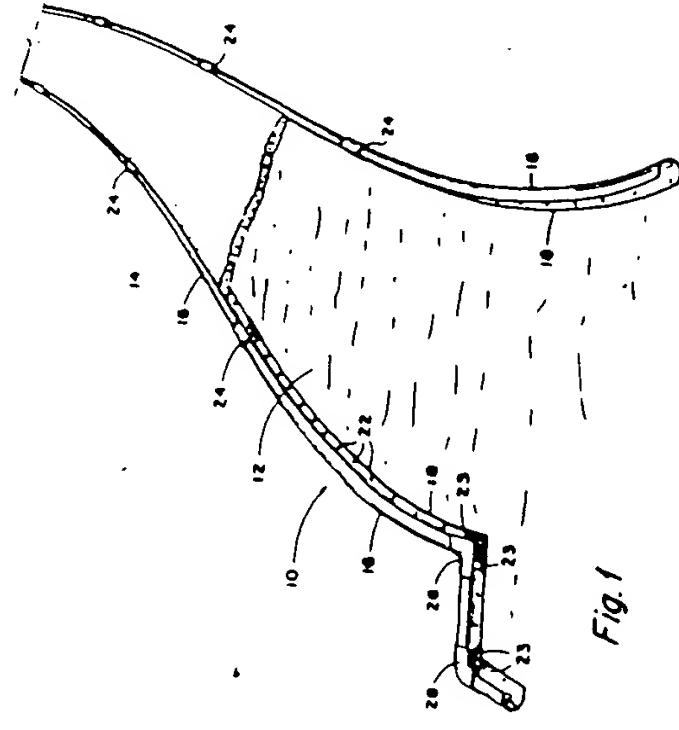


Fig. 1

Standard of Review

"[O]bviousness is a question of law to be determined from the facts."⁵ The obviousness determination "is based upon underlying factual inquiries concerning the claimed invention and the prior art" which are reviewed for clear error.⁶ However, it is the ultimate conclusion of obviousness which the Federal Circuit reviews as a matter of law.⁷

Teachings of Wilson
Fritch takes exception to the Examiner's findings of fact related to the teachings of the Wilson patent. The Examiner's rejection and the Board's opinion rely heavily on the use of Wilson in view of other references to declare the Fritch invention obvious.

The Board states that it agrees with the Examiner's finding of fact regarding the

teachings of Wilson. In the Examiner's answer, which the Board quotes, the Wilson device is described as follows: Wilson discloses a landscaping edging strip comprising a relatively thin gauge, elongated flexible base portion including a mower strip B having a planar bottom surface conformable to a varying slope surface.

The Board states that the Wilson reference presents "substantial evidence that Wilson is both thin and flexible." The Board regards the Wilson device as teaching that it is flexible and conformable in its entirety. This finding demonstrates clear error.

It is well settled that a prior art reference is relevant for all that it teaches to those of ordinary skill in the art.⁸ The base portion of Wilson is not planar in its

entirety, as the Board's opinion suggests, but also includes a prominent anchoring leg to secure the device to the ground. The anchoring leg, which runs the length of the Wilson device, would inhibit longitudinal flexibility of the Wilson device. Indeed, Wilson expressly contemplates flexibility and conformability *only* in the mower strip. Wilson states that its mower strip may be lifted in order to pack dirt thereunder for the purpose of securing the device to the ground. Fritch, on the other hand, is claimed to be flexible in its entirety. The Board's holding that Wilson is flexible in its entirety is based upon a misapprehension of the scope of Wilson's teachings.

Second, Wilson's anchoring leg prohibits conformability to the ground surface in the manner claimed by Fritch. The Examiner's description of Wilson as having a "planar bottom surface conformable to a varying slope surface" is applicable *only* in reference to the mower strip. This description, however, ignores the anchor leg and the fact that it must be placed *into* the ground. Wilson expressly teaches that the anchoring leg may be pushed into soft soils, but in harder terrain a trench is needed in order to place the Wilson sprinkler system. In order to install the Wilson apparatus, the ground surface must be altered to conform to the device rather than, as the Solicitor contends, that Wilson is freely conformable to the ground. Fritch, on the other hand, does not require such extensive alteration of the ground surface in order to install the device.

Prima Facie Obviousness

[1] In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. "[The Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art." Wilson also

9. *In re Piatecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed.Cir.1984).

5. *In re De Blauwe*, 736 F.2d at 703, 222 USPQ 195.

7. *In re De Blauwe*, 736 F.2d at 703, 222 USPQ 195.

8. *Beckman Instruments Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed.Cir.1989).

IN RE FRITCH

Cite no. 972 F.2d 1260 (Fed.Cir. 1992)

1265

the art would lead that individual to combine the relevant teachings of the references."¹⁰ The patent applicant may then attack the Examiner's prima facie determination as improperly made out, or the applicant may present objective evidence tending to support a conclusion of nonobviousness.¹¹

[2] Fritch has attacked the Board's finding that the Examiner established that Fritch's claimed invention was *prima facie obvious* in view of the teachings of the prior art. The Board states that "a collective evaluation of the Wilson and the Hendrix patents would have rendered the subject matter of independent claims 1, 13, 24, and 29 obvious to one of ordinary skill." Fritch maintains that there is no teaching, suggestion, or incentive in the prior art to modify or to combine the teachings of the prior art in the manner suggested by the Examiner. We agree.

Wilson teaches a grass edging and wa-tering device which includes an anchoring leg for securing the device to the ground. Wilson contemplates that a trench will need to be dug in order to allow the anchoring leg to be placed into the ground if the condition of the soil requires it. This anchoring leg prohibits flexibility and conformability over the length of Wilson. Any flexibility or conformability in Wilson, which the Board states extends to the entire device, is limited to the mower strip. It is only the mower strip that is mentioned as being flexible in order to aid installation.

Hendrix has been cited for its teaching of a flexible retainer strip that is able to conform to the ground surface.

Wilson addresses the problems of arrest-ing growth of grass between areas and watering plants without wetting sidewalks. Wilson lacks any suggestion or incentive to use its water conduit as a landscape retain-er since this would arguably result in clogged sprinkler heads.¹² Wilson also

10. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed.Cir.1988) (citing *In re Lulu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed.Cir. 1988)).

11. *In re Held*, 433 F.2d 808, 811, 167 USPQ 676, 678 (CCPA 1970).

12. This court has previously found a proposed modification inappropriate for an obviousness inquiry when the modification rendered the prior art reference inoperable for its intended pur-

teachea that its mower strip is flexible in prior art to deprecate the claimed invention.¹⁴ There is no suggestion in Wilson to extend that flexibility to the entire device. Wilson also lacks any teaching or suggestion that one should remove the anchoring leg. Hendrix does not, simply by virtue of its flexible nature, suggest these extensive changes which the Board states are obvious. Neither Wilson nor Hendrix, alone or in combination, provide any incentive to combine the teachings of the prior art in the manner maintained by the Board.

"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so."¹⁵ Although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.¹⁶ Wilson and Hendrix fail to suggest any motivation for, or desirability of, the changes espoused by the Examiner and endorsed by the Board.

[3] Here, the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious.¹⁷ This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the pose. *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984).

13. *ACS Hosp. Systems, Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed.Cir.1984).

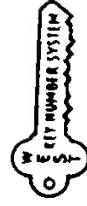
14. *In re Gordon*, 733 F.2d at 902, 221 USPQ at 1127.

15. *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed.Cir.1991). See also *Interconnect*

Conclusion

The decision of the Board affirming the Examiner's rejection of independent claims 1, 13, 24, and 29 of Fritch's application as unpatentable over the prior art under 35 U.S.C. § 103 is reversed. Since dependent claims are nonobvious if the independent claims from which they depend are nonobvious, the Board's affirmance of the rejection of dependent claims 2-7, 9-12, 14-23, and 30 is also reversed.¹⁷

REVERSED.



The UNITED STATES,
Plaintiff-Appellee,
v.
COMMODITIES EXPORT CO.,
Defendant-Appellant.

Old Republic Insurance Co.,
Defendant-Appellant.
No. 91-1470, 91-1482.
United States Court of Appeals,
Federal Circuit.

Aug. 11, 1992.

Government brought action to recover unpaid liquidated damages under customs warehouse bond. The United States Court of Appeals. *In re Fine*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984).

16. *In re Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600.

17. *In re Fine*, 837 F.2d at 1076, 5 USPQ2d at 1600 (citing *Hartness Inv'l Inc. v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108, 2 USPQ2d 1826, 1831 (Fed.Cir.1987)). See also *In re Sernaker*, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed.Cir.1983) (when argued together, dependent claims stand or fall with the independent claims from which they depend).

Under federal law governing statutes of limitations, cause of action accrues when time barred, as Customs' delay in bringing suit until after it had complied with regulations for demanding payment did not affect accrual of action.

6. Limitation of Actions \Leftrightarrow 47(3)

Action brought by government to recover unpaid liquidated damages under customs warehouse bond was time barred under six-year limitations period for actions founded on contract; fact that Customs unilaterally adopted regulations which delayed filing of action until Customs had given notice and waited 60 days for response did not change accrual of limitations period. 28 U.S.C.A. §§ 2415, 2416, 2416(c).

Mark S. Sochaczewsky, Atty., Commercial Litigation Branch, Dept. of Justice, New York City, argued, for plaintiff-appellee. With him on the brief, were Stuart M. Gerson, Asst. Atty. Gen., David M. Cohen, Director and Joseph I. Liebman, Atty. in Charge, Intern. Trade Field Office. Also on the brief was Michele L. Kenney, U.S. Customs Service, of counsel.

Roger E. Craig, Naples, Fla., argued, for defendant-appellant, Commodities Export Co. With him on the brief, was Walter H. Lubieniiski, Lubieniiski & Lubieniiski, Detroit, Mich. Wayne James Jarvis, Wayne Jarvis, Ltd., Chicago, Ill., argued, for defendant-appellant, Old Republic Ins. Co. With him on the brief was Michael G. Hodges, Hodges & Filon, Chicago, Ill., of counsel.

Before ARCHER, Circuit Judge, BENNETT, Senior Circuit Judge, and RAIDER, Circuit Judge.

The United States sued Commodities Export Company and Old Republic Insurance Company in the United States Court of International Trade to recover unpaid liquidated damages under a customs warehouse bond. The trial court entered judgment in favor of the United States. *United States v. Commodities Export Co. & Old Republic Ins. Co.*, CIV No. 89-03-00144, May 14, 1991. Because the United States did not file its action within the six year statute of

¹⁴ "The examiner is not allowed to deprecate the claimed invention." *In re Fine*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984).

¹⁵ "The examiner is not allowed to deprecate the claimed invention." *In re Fine*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984).

¹⁶ "The examiner is not allowed to deprecate the claimed invention." *In re Fine*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984).

¹⁷ "The examiner is not allowed to deprecate the claimed invention." *In re Fine*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984).

which is used as a basis for denial of credit. Furthermore, the definition of a consumer report [set forth in § 1681(a)(1)] is not limited to derogatory or adverse information, but encompasses [a communication of any information by a consumer reporting agency relating to a consumer's creditworthiness, credit standing, credit capacity, etc.]

FTR: Unofficial Staff Interpretation (July 5, 1973), reprinted in R. Clonitz, *Fair Credit Reporting Manual* at § 1001 (1977 ed.) (emphasis in the original). Thus a creditor could, upon obtaining a consumer report, discover that a prospective borrower had established an excellent credit record over a period of years, yet determine that qualifications revealed in the report did not meet own standards of creditworthiness. Under these circumstances, disclosure would be mandated.

[6] Such is the case herein. Fischl's application for credit was denied in part because of information in a report prepared by a credit reporting service. This information was incomplete and misleading. The House conferees succeeded in assuring immediate notification to any individual who is rejected for credit, insurance or employment because of information in a credit report, of the name and address of the agency which made the report on him. Thus, his right to access to his file is made more meaningful—the will automatically be told where to look for information which may be causing him needless harm. The Senate bill would have required the consumer who had been rejected for credit, insurance or employment because of information in a credit file to

request, in writing, the name and address of the credit reporting bureau, in order to check further into the information which may have caused his rejection. It was our feeling that this was a needless technicality which would have resulted from a practical standpoint, in some, or many, individuals, for timidity or other reasons, failing to exercise their rights to find out where to go in order to have a damaging credit report reevaluated and, if wrong, corrected. Some of the consumer witnesses at our hearings made a particular point of this.

Conf Rep No. 91-1587, 91st Cong., 2d Sess., reprinted in 1970 U.S.Cong. & Admin. News, pp 4394, 4416 (emphasis added). In the course of her presentation of the conference bill in the House, Representative Sullivan commented:

The House conferees succeeded in assuring immediate notification to any individual who is rejected for credit, insurance or employment because of information in a credit report, of the name and address of the agency which made the report on him. Thus, his right to access to his file is made more meaningful—the will automatically be told where to look for information which may be causing him needless harm. The Senate bill would have required the consumer who had been rejected for credit, insurance or employment because of information in a credit file to

details of his credit history set forth on the report, when evaluated under GMAC's judgmental criteria, did not furnish a sufficient guarantee of financial responsibility to support an extension of credit in the amount sought. GMAC concluded that the record of Fischl's current obligations did not justify a prediction that he could successfully undertake the monthly payments contemplated.

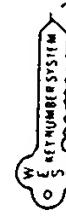
Despite its reliance on data contained in the credit report, when reporting to Fischl via the form letter of October 3, 1980, GMAC did not disclose this information, advising instead that disclosure was inapplicable. This action did not comport with § 1681(m)(a). Similarly, GMAC's subsequent oral response to Fischl's inquiry, noting the name and address of the credit bureau, did not suffice under the statute. We need not and do not decide whether the notice required by § 1681(m)(a) must be written, nor do we decide the mandated timing for the notice. Those questions remain for another day.⁵

5. We note in passing, references reflecting congressional intent with respect to timing. The House amendment, which was agreed to by the conferees, deleted the requirement in § 615(a) [1681(m)(a)] that the consumer be required to submit a written request after denial of credit, insurance, or employment to obtain the name and address of the consumer reporting agency making the report. The conference substitute now requires the user of the report to convey this information to the consumer immediately upon denial of credit, insurance or employment.

Conf Rep No. 91-1587, 91st Cong., 2d Sess., reprinted in 1970 U.S.Cong. & Admin. News, pp 4394, 4416 (emphasis added). One court, after examining the statutory language and pertinent legislative history, opined that disclosure under § 1681(m)(a) must be effected contemporaneously with the creditor's notification of its decision to decline credit. *Carroll v. Exxon Co., U.S.A.* This position finds support in advisory guidelines compiled by the FTC. Pamphlet, Compliance with the Fair Credit Reporting Act at 3 (rev'd. ed. 1979) ("[t]he consumer is given the right to be told the name and address of the consumer reporting agency when he is rejected for credit, insurance or employment at the time of such denial") (emphasis added). Accord, R. Clonitz, *Equal Credit Opportunity Manual* at 5, 19 (1981 Supp.), Weinstein, *Federal Fair Credit Reporting Act—Compliance by Lenders*

17, 8] Because Fischl succeeded in locating the credit bureau and securing a copy of the report in short order, the district court determined that he could not have suffered any actual damages. That does not end the inquiry before us. Even where no pecuniary or out-of-pocket loss has been shown, the FCRA permits recovery for humiliation and mental distress. *Thompson v. San Antonio Retail Merchants Ass'n*, 682 F.2d 509 (5th Cir.1982); *Millstone v. O'Hanlon Re-ports, Inc.*, 528 F.2d 829 (8th Cir.1976); see *Favers v. Equifax*, 650 F.2d 793 (5th Cir. 1981), as well as for injury to one's reputation and creditworthiness. *Bryant v. TRW, Inc.*, 689 F.2d 72 (6th Cir.1982) (citing Representative Sullivan's remarks, set forth at 116 Cong.Rec. 36570 (1970)). Negligent noncompliance with the FCRA entitles the consumer to an award of actual damages and reasonable attorney's fees. 15 U.S.C. § 1681(o); willful noncompliance in addition gives rise to liability for punitive damages. Section 1681(m)(2). See *Bryant v. TRW; Thornton v. Equifax*, 619 F.2d 700 (8th Cir.), cert. denied, 449 U.S. 835, 101 S.C. 1038, 66 L.Ed.2d 41 (1980). Malice or evil motive need not be established for a punitive damages award, but the violation must have been willful. *Thornton*. On remand, the district court should assess plaintiff's right under §§ 1681(o) and 1681(n) to actual damages, costs and reasonable attorney's fees, and punitive damages. In so remanding, we intimate no conclusion as to whether damages should be awarded. That is for the district court to determine, either on the basis of the record as presently constituted or as supplemented by additional submissions, as the district court deems appropriate.

REVERSED and REMANDED for further proceedings consistent herewith.



1. **Patents** \Rightarrow 112.1 Properly issued patent was entitled to presumption of validity and alleged infringement bore burden of showing invalidity. 35 U.S.C.A. § 282.

2. **Patents** \Rightarrow 37 To be patentable, invention must be novel. 35 U.S.C.A. § 102.

3. **Patents** \Rightarrow 72(1) Defense of anticipation, derived principally from statute requiring that, to be patentable, invention must be novel, is strictly technical, requiring showing of actual identity in prior art. 35 U.S.C.A. § 102(a).

4. **Patents** \Rightarrow 72(1) Unless all of same elements or their equivalents are found in substantially same situation where they do substantially same function, § 99, Ranking 1, J. 410, 423 (1971)

[7, 8] Because Fischl succeeded in locating the credit bureau and securing a copy of the report in short order, the district court determined that he could not have suffered any actual damages. That does not end the inquiry before us. Even where no pecuniary or out-of-pocket loss has been shown, the FCRA permits recovery for humiliation and mental distress. *Thompson v. San Antonio Retail Merchants Ass'n*, 682 F.2d 509 (5th Cir.1982); *Millstone v. O'Hanlon Re-ports, Inc.*, 528 F.2d 829 (8th Cir.1976); see *Favers v. Equifax*, 650 F.2d 793 (5th Cir. 1981), as well as for injury to one's reputation and creditworthiness. *Bryant v. TRW, Inc.*, 689 F.2d 72 (6th Cir.1982) (citing Representative Sullivan's remarks, set forth at 116 Cong.Rec. 36570 (1970)). Negligent noncompliance with the FCRA entitles the consumer to an award of actual damages and reasonable attorney's fees. 15 U.S.C. § 1681(o); willful noncompliance in addition gives rise to liability for punitive damages. Section 1681(m)(2). See *Bryant v. TRW; Thornton v. Equifax*, 619 F.2d 700 (8th Cir.), cert. denied, 449 U.S. 835, 101 S.C. 1038, 66 L.Ed.2d 41 (1980). Malice or evil motive need not be established for a punitive damages award, but the violation must have been willful. *Thornton*. On remand, the district court should assess plaintiff's right under §§ 1681(o) and 1681(n) to actual damages, costs and reasonable attorney's fees, and punitive damages. In so remanding, we intimate no conclusion as to whether damages should be awarded. That is for the district court to determine, either on the basis of the record as presently constituted or as supplemented by additional submissions, as the district court deems appropriate.

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work in same way, there is no patent anticipation. 35 U.S.C.A. § 102(a)

5. **Patents** \Rightarrow 310(7%)

Allegation by alleged patent infringer of prior uses which were in fact found in somewhat similar but distinct situations did not provide sufficient basis upon which to negate novelty. 35 U.S.C.A. § 6 102, 102(a)

6. **Patents** \Rightarrow 168(1)

Claim that prior art placed before Patent Office in course of its review and approval was inadequate was not supported by file wrapper where, although application did not list every prior art device which contained some element found on marsh buggy for which patent was sought, application presented examiner with pertinent prior art, including relevant references to each element distinguishing buggy from earlier patented marsh craft. 35 U.S.C.A. § 102.

7. **Patents** \Rightarrow 98

Justification of prior art requirement includes notion of fair disclosure by applicants so that Patent Office may adequately consider previous inventions. 35 U.S.C.A. § 102.

8. **Patents** \Rightarrow 98

In context of prior art placed before Patent Office in course of its review, fair disclosure is not endless or absolute disclosure; it suffices if Patent Office is not misled and has meaningful opportunity to compare pertinent prior art. 35 U.S.C.A. § 102.

9. **Patents** \Rightarrow 26(14, 2)

Lynchpin of evaluation of patent's obviousness is not whether individual components were obvious at time of invention, but whether aggregation produced new or different result or achieved synergistic effect. 35 U.S.C.A. § 103.

10. **Patents** \Rightarrow 26(1)

In judging obviousness of combination patent, Court of Appeals would look to aggregate effect of individual components. 35 U.S.C.A. § 103.

Before TUTTLE, POLITZ and GARWOOD, Circuit Judges.

POLITZ, Circuit Judge:

The discovery of oil and gas deposits beneath the marshes and swamps of the Gulf South opened vast vistas of opportunity and called for a host of new developments. A form of transportation capable of traversing the neither-land-nor-water character of the wide-open treeless marshes, as well as the obstruction-ridden, stump-studded swamps, was an immediate and pressing need. In 1974, Huey J. Rivet offered a solution with an "Amphibious Marsh Craft" for hauling loads and laying pipeline in the swamp. The instant dispute involves Rivet's marsh patent, infringed, according to the plaintiffs, by the defendants' manufacture of similar craft. After bifurcation, the district court, 561 F. Supp. 512, found the Rivet patent valid and infringed by defendants' vehicle. We affirm.

Facts

The Rivet patent, U.S. Patent No. 3,842,785, describes an endless-track amphibious vehicle, resembling a pontooned army tank, capable of traversing marshes and swamp land, carrying loads up to 60 tons over tree stumps and other obstacles. Rivet's buggy finds primary application in oil and gas related transportation and construction, offering an efficient method for laying pipelines through the Louisiana swamps.

Before the advent of the Rivet craft, those venturing into the swamps relied on a marsh craft patented in 1947 by Frank Reynolds. The Reynolds amphibian was originally used in seismic survey work in the open marshes. Its design was not suitable for hauling heavy loads or for movement through swampy areas. In the 1950s this craft was adapted for limited pipeline work by attachment of a small crane to a set of Reynolds-type pontoons. Other modifications included the addition of a backhoe and the reduction of the vehicle's size, both in an effort to avoid damage caused by tree stumps encountered in the swamps.

Greenberg & Dallam, Nathan Greenberg, Gretna, La., for defendants-appellants.
Keaty & Garvy, Thomas S. Keaty, New Orleans, La., for plaintiffs-appellees.
Appeal from the United States District Court for the Eastern District of Louisiana.

* Circuit Judge of the Eleventh Circuit, sitting by designation.

Hospital: the adaptations, the Reynolds buggy could not make the transition from treeless marshes to treed swamps, and it could not carry heavy loads without frequent mishaps. Pipeline workers sought to navigate the swamps by "matting," a procedure using huge timber mats to support earthmovers which cleared away the tree stumps. The process was slow, cumbersome and expensive. The mats had to be moved to each new location and, not infrequently, the equipment would slip off the mats and sustain damage. The name of the game was damages and delay. Even with this costly workover of the swamps, the Reynolds craft would break down often, making back-up units necessary to prevent expensive immobilization of construction crews.

Huey Rivet was using this burdensome process while laying pipeline in Mississippi and Louisiana in 1971. Frustration at the inefficiency and construction delays provided the motivation for his invention of a structurally stronger, more watertight buggy. Rivet developed a buggy capable of traversing stump-lotted swampland, actually "walking" over stumps without matting or preclearing. The craft could do so for extended periods, carrying substantial loads. The design resisted the dual hazard of previous marsh buggies—pontoon puncturing and weld twisting.

The advantages enjoyed by the Rivet model derived principally from: (1) placement of plastic support blocks on the cleats to prevent pontoon puncturing, (2) spacing of I-beams on pontoon bottoms for support, and (3) creating discrete buoyant chambers by placing vertical bulkheads within the length of the pontoons.

Robert J. Wilson, Sr., father of defendants John M. Wilson, Sr., Dean R. Wilson, and Robert J. Wilson, Jr., worked for Rivet during 1974 as a contract welder. During this time, as found by the district court, Wilson received detailed instructions on the design of the Rivet pontoon. Upon completion of his welding contract with Rivet, Wilson began building Rivet-type pontoons

for Wilco Marsh Buggies and Draglines, Inc., a corporation formed and owned by his three sons. Wilco bought a Rivet craft and Dean Wilson ordered copies of the Rivet patent. Wilco began the production and sale of a marsh buggy strikingly similar to the Rivet vehicle, especially the model manufactured by Kori Corporation, a Rivet licensee.

Rivet, Kori, and another licensee, Louis Woodsen, filed the instant suit against Wilco and the Wilson brothers, seeking injunctive relief and damages. In the pre-trial bifurcation, the issue of damages, together with claims and counterclaims of unfair competition, libel and trade secret appropriation, was severed.¹ After trial to the court, the district court found the patent and infringement and enjoined further infringement.

Validity

Relying on the Reynolds patent, recent design improvements in the marsh craft industry, and patents from other fields, Wilco contends that the Rivet patent is invalid because: (1) it was anticipated in the prior art, and/or (2) its claims were obvious to one having ordinary skill in the relevant art.

[1] The Rivet patent, like all patents properly issued, is entitled to a presumption of validity. 35 U.S.C. § 282. Wilco bears the burden of showing the invalidity of a patent regular on its face. *E.g., Farmhand, Inc. v. Angel Engineering Industries, Inc.,* 693 F.2d 1140 (5th Cir.1982); *Parker v. Motorola, Inc.*, 524 F.2d 518, 521 (5th Cir.1975) (describing various measures of proof applied and concluding that more than a "preponderance of the evidence" is required), cert. denied, 425 U.S. 975, 96 S.Ct. 2175, 48 L.Ed.2d 799 (1976).

1. Wilco's appeal originally included an attorney's fees issue. We noted, and Wilco agreed, that the issue was raised prematurely. By supplemental briefing Wilco waived, at this time, the attorneys' fees appeal, leaving that issue to be considered with the second phase of the bifurcated trial. We find that the issues Wilco ultimately urges to this court are properly before us.

[2] Wilco claims that its burden should be lightened in this case and the presumption of validity lessened, suggesting that the prior art placed before the Patent Office.

2. Section 102(a) provides that one is entitled to a patent unless "the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent." Prior art may also invalidate a patent even where the invention is not identically disclosed as required by § 102, if the distinguishing feature is obvious. 35 U.S.C. § 103.

3. Moreover, the record supports an inference

that one of these elements—Rivet's pontoon

structure—was itself unique and nonobvious.

view in the course of its review and approval of the Rivet patent was inadequate. See *e.g., Catholic Protection Service v. American Smelting & Refining Co.*, 594 F.2d 499 (5th Cir.), cert. denied, 444 U.S. 965, 100 S.Ct. 453, 62 L.Ed.2d 378 (1979). This claim is not supported by the file wrapper. Although Rivet's application did not list every prior art device which contained some element found on his marsh buggy, it presented the Examiner with the pertinent prior art, including the relevant references to each element distinguishing Rivet's craft from Reynolds' and Reynolds-type crafts.

[7, 8] The *raison d'être* of the prior art requirement includes the notion of fair disclosure by applicants so that the Patent Office may adequately consider previous inventions. Fair disclosure is not endless or absolute disclosure. It suffices if the Patent Office is not misled and has a meaningful opportunity to compare pertinent prior art. We have cautioned in the context of a fair trade/antitrust dispute:

Fair dealing . . . is not a mechanical mandate that every patent ultimately cited by the Examiner in issuing the patent or, more so, by the unlimited industry [of] counsel in a years-later infringement suit

in which every writing, periodical, or patent, foreign or domestic, is dredged up as prior art, must be cited in the application.

Recon, Dickinson & Co. v. Sherwood Medical Industries, Inc., 516 F.2d 514, 524 (5th Cir.1975). Wilco has not shown that Rivet inadequately disclosed, or that the Patent Office failed to consider, relevant prior art sufficient to cast doubt upon the patent's validity.

2. Obviousness

Wilco also claims that the Rivet patent is invalid for obviousness. This defense derives from 35 U.S.C. § 103, which prescribes that no valid patent will issue if the differences between the invention sought to be patented and the prior art are such that the invention "as a whole would have been ob-

vious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

[9] Wilco again invites our attention to prior art devices which relate to elements of the Rivet invention. But "[t]he linchpin is not whether the individual components of the . . . patent were obvious at the time of the invention, but whether the aggregation produced a new or different result or achieved a synergistic effect." *Continental Oil Co.*, 634 F.2d at 197. In this sense the inquiry under § 103 is whether prior use makes the picture on the jigsaw puzzle, rather than its pieces, obvious.

[10, 11] Because this appeal involves a combination patent, in judging obviousness we look to the aggregate effect. Courts are reluctant to find inventiveness in an amalgamation of old ideas, see *Sakrand v. Ag Pro, Inc.*, 425 U.S. 273, 96 S.Ct. 1532, 47 L.Ed.2d 784 (1976), so that combination patents, to be valid, must produce an unexpected, unusual or synergistic result. The inquiry is nothing more than an instance of gestalt analysis: Is the whole greater than the sum of its parts? *Farmhand*, 693 F.2d at 1144-45; *Whiteley v. Road Corp.*, 624 F.2d 698 (5th Cir.1980).

[12] Even though many of the elements of the Rivet patent can be separately found in the prior art, the combination is striking. No previous craft was capable of traveling safely for extended periods through stumped swamps. None could carry the heavy loads demanded by oil-related exploration and construction. The improvements to prior craft, were merely quantitative. The one craft combining these features—the Rivet model—made a quantum leap in transportation through the swamp. Other machines may have used two of the three modifications Rivet made, but two-out-of-three did not create a new buggy capable of matching the performance of the Rivet craft.³ This synergistic effect of the triad modifications belies the charge of obviousness.

bolstering the court's finding of validity irrespective of the dramatic value of the combination of pontoon, hock and beam.

[13] The district court's finding of non-obviousness is further supported by such secondary considerations as commercial success, copying, and previous need and failure. *See Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966); *Continental Oil Co.*, 634 F.2d at 197 & n. 5 (others had tried in vain for three years to produce a working paravane). The limitations of the Reynolds craft, when tested outside its intended uses, were immediately apparent. No definitive improvement was offered for over twenty years. We conclude that the Rivet patent was innovatively different and not readily obvious to one in Rivet's position and is therefore valid.

Infringement

[14] The final issue is whether Wilco's marsh buggy infringes the Rivet patent. Wilco suggests a number of modifications which, it is claimed, distinguish Wilco's product from Rivet's patent. These alterations may suffice to prevent literal infringement of some of the claims of the Rivet patent, but the doctrine of equivalents gives a patentee broad protection from minor deviations. *Ziegler v. Phillips Petroleum Co.*, 483 F.2d 858 (5th Cir.), cert. denied, 414 U.S. 1079, 94 S.Ct. 597, 38 L.Ed.2d 485 (1973).

[15] We need not belabor the point. Suffice it to say that a comparison of the two craft reveals substantial identity of means, operation and result. The differences are cosmetic and trivial. The essence of both vehicles is the same: each relies on Rivet improvements. Wilco's models ringe the Rivet patent.

AFFIRMED.

1. **Shipping** \Rightarrow 58(2 $\frac{3}{4}$)

Finding of fact that vessel owner had not proven that person who contacted owner's sales representative and requested charter of vessel for towing barges was agent of alleged charterer was not clearly erroneous under either maritime law or Louisiana law, notwithstanding alleged charterer's reference in pretrial order to person who contacted owner's sales representative as its representative. Fed.Rules Civ.Proc. Rule 52(a), 28 U.S.C.A.; LSA-C.C. art. 2985.

2. **Principal and Agent** \Rightarrow 8, 14(1)

Under Louisiana law, agency relationship is created by either express appointment of a mandatory under Civil Code or by implied appointment arising from apparent authority. LSA-C.C. art. 2985.

POLITZ, Circuit Judge:

We examine the propriety of the trial judge's grant of a Fed.R.Civ.P. 41(b) motion in favor of the defendant. Finding no error in any finding of fact or conclusion of law, we affirm.

RICHARD A. CHERAMIE ENTERPRISES, INC., Plaintiff-Appellant.

MT. AIRY REFINING CO., in personam, Defendant-Appellee.

No. 82-3576

Summary Calendar.

United States Court of Appeals,
Fifth Circuit.

June 27, 1983.

Vessel owner filed action in admiralty to recover charges for towage services and fuel allegedly furnished alleged charterer in charter of push boat. The United States District Court for the Eastern District of Louisiana, Patrick E. Carr, J., granted alleged charterer's motion for involuntary dismissal, and vessel owner appealed. The Court of Appeals, POLITZ, Circuit Judge, held that finding of fact that vessel owner had not proven that person who allegedly contacted owner's sales representative and requested charter of vessel for towing barges was alleged charterer's agent was not clearly erroneous under either maritime law or Louisiana law.

Affirmed.

3. Principal and Agent \Rightarrow 14(2)

To establish implied agency under Louisiana law between person who arranged for push boat charter and gave daily instructions to vessel and alleged charterer, it had to be shown that alleged charterer, as principal, made some manifestation to vessel owner and that vessel owner reasonably relied on putative agent's purported authority as direct consequence of alleged charterer's representations.

4. Principal and Agent \Rightarrow 23(1)

Under Louisiana law, agency may not be established by words of purported agent. Under Louisiana law, agency relationship cannot be presumed, but must be clearly established.

5. Principal and Agent \Rightarrow 19

Under Louisiana law, agency relationship is indicated, party preparing to deal with agent has affirmative duty to determine extent and scope of agent's authority to bind principal.

6. Principal and Agent \Rightarrow 14(2)

Under Louisiana law, once agency is indicated, party preparing to deal with agent has affirmative duty to determine extent and scope of agent's authority to bind principal.

7. Principal and Agent \Rightarrow 23(1)

Under general agency principles, statements of agent cannot establish existence of agency relationship.

Facts

Richard A. Cheramie Enterprises, Inc., filed this action in admiralty against Mt. Airy Refining Company for \$28,092.70, representing charges for towage services and fuel allegedly furnished Mt. Airy in the charter of the push boat VICKIE MARIE C. from January 8 24, 1981.

Raymond Shipley contacted Robert Cazayoux, a sales representative for Cheramie, and requested the charter of a vessel for towing barges. On January 17, 1981, at the mid-point of the tow, the captain of Cheramie's VICKIE MARIE C. refueled and directed that the fuel charges be billed to Green Country Barge Lines. On January 24, 1981, Shipley notified a vice president of Cheramie to terminate the charter. In the interim, the captain of the push boat had, on a daily basis, contacted Shipley for instructions.

Upon termination of the charter, Cazayoux said he billed Mt. Airy on instructions of Shipley, but that Shipley subsequently reported that he was working for someone else and requested that the billing be made to Green Country. Shipley testified that he had informed Cazayoux from the outset that the charter was for Green Country and directed billing to that entity. When an invoice was sent to Mt. Airy, Shipley said he contacted Cheramie's office staff and told them they had billed in error and should send the invoice to Green Country at an address he furnished. Green Country never paid and apparently folded.

The sole issue is whether Cheramie proved that Shipley was an agent acting on behalf of Mt. Airy when he arranged for the charter and gave daily instructions to the VICKIE MARIE C. Cheramie contends that the resolution of this issue is foreclosed by the Pre-trial Order in which Mt. Airy purportedly admitted Shipley's status and authority. In support of this contention Cheramie points to paragraph 6(b) of the Pre-trial Order which reads in pertinent part:

A brief summary of the material facts claimed by defendant, Mt. Airy Refining Company, are:

4. Principal and Agent \Rightarrow 23(1)

Under Louisiana law, agency relationship is created by either express appointment of a mandatory under Civil Code or by implied appointment arising from apparent authority. LSA-C.C. art. 2985.

AT LEAST SOME DEGREE OF PREDICTABILITY IS REQUIRED; APPLICANTS MAY PRESENT EVIDENCE SHOWING THERE WAS NO REASONABLE EXPECTATION OF SUCCESS

Obviousness does not require absolute predictability, however, at least some degree of predictability is required. Evidence showing there was no reasonable expectation of success may support a conclusion of nonobviousness. *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) (Claims directed to a method for the commercial scale production of polyesters in the presence of a solvent at superatmospheric pressure were rejected as obvious over a reference which taught the claimed method at atmospheric pressure in view of a reference which taught the claimed process except for the presence of a solvent. The court reversed, finding there was no reasonable expectation that a process combining the prior art steps could be successfully scaled up in view of unchallenged evidence showing that the prior art processes individually could not be commercially scaled up successfully.). See also *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1207-08, 18 USPQ2d 1016, 1022-23 (Fed. Cir.), *cert. denied*, 502 U.S. 856 (1991) (In the context of a biotechnology case, testimony supported the conclusion that the references did not show that there was a reasonable expectation of success.); *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (The court held the claimed method would have been obvious over the prior art relied upon because one reference contained a detailed enabling methodology, a suggestion to modify the prior art to produce the claimed invention, and evidence suggesting the modification would be successful.).

PREDICTABILITY IS DETERMINED AT THE TIME THE INVENTION WAS MADE

Whether an art is predictable or whether the proposed modification or combination of the prior art has a reasonable expectation of success is determined at the time the invention was made. *Ex parte Erlich*, 3 USPQ2d 1011 (Bd. Pat. App. & Inter. 1986) (Although an earlier case reversed a rejection because of unpredictability in the field of monoclonal antibod-

ies, the court found “in this case at the time this invention was made, one of ordinary skill in the art would have been motivated to produce monoclonal antibodies specific for human fibroblast interferon using the method of [the prior art] with a reasonable expectation of success.” 3 USPQ2d at 1016 (emphasis in original).).

2143.03 All Claim Limitations Must Be Taught or Suggested

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

INDEFINITE LIMITATIONS MUST BE CONSIDERED

A claim limitation which is considered indefinite cannot be disregarded. If a claim is subject to more than one interpretation, at least one of which would render the claim unpatentable over the prior art, the examiner should reject the claim as indefinite under 35 U.S.C. 112, second paragraph (see MPEP § 706.03(d)) and should reject the claim over the prior art based on the interpretation of the claim that renders the prior art applicable. *Ex parte Ionescu*, 222 USPQ 537 (Bd. Pat. App. & Inter. 1984) (Claims on appeal were rejected on indefiniteness grounds only; the rejection was reversed and the case remanded to the examiner for consideration of pertinent prior art.). Compare *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970) (if no reasonably definite meaning can be ascribed to certain claim language, the claim is indefinite, not obvious) and *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962) (it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions).

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